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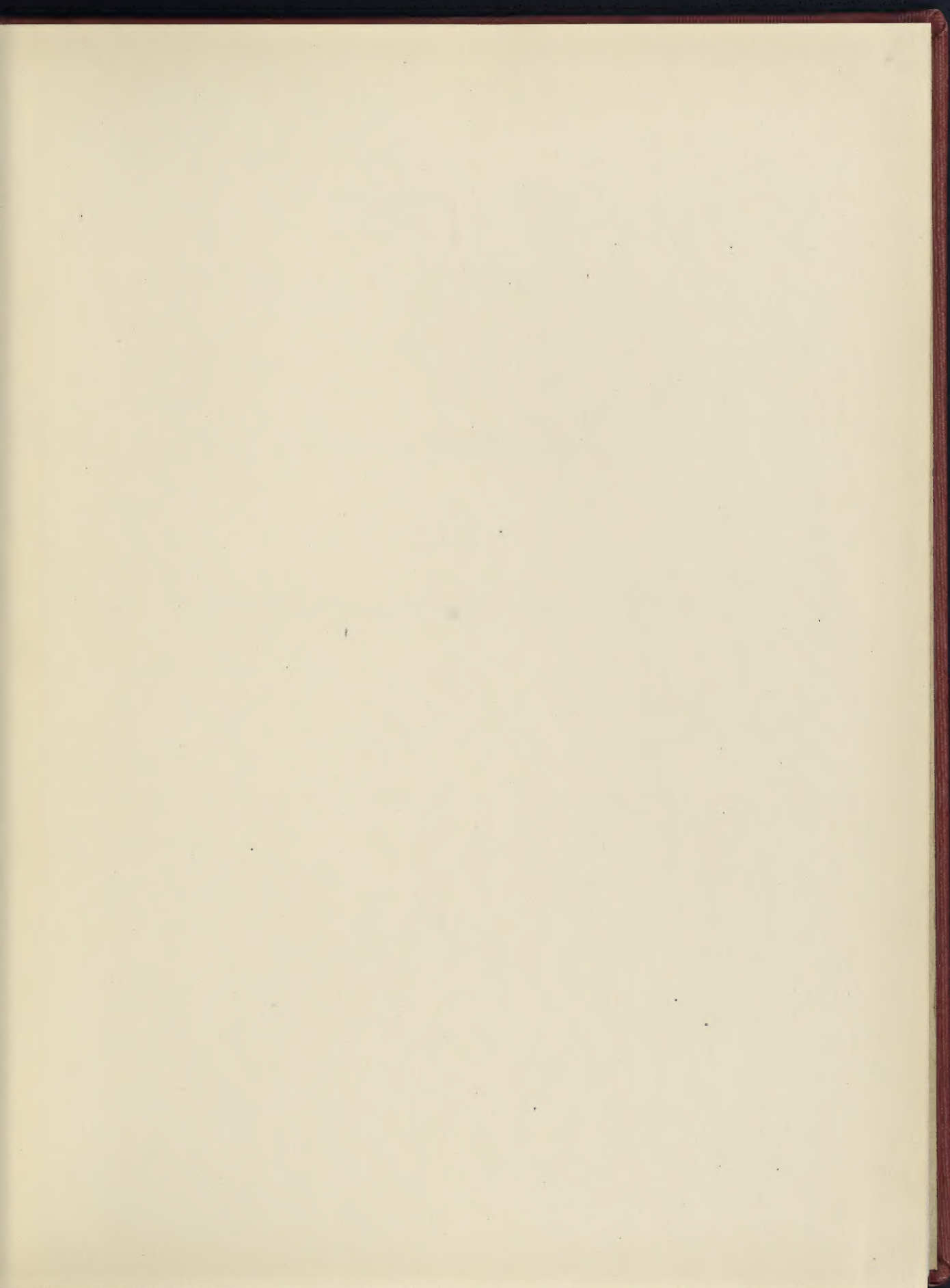


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MEMOIRS  
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PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND  
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ARCHAEOLOGICAL RESEARCHES

IN

YUCATAN

REPORTS OF EXPLORATIONS FOR THE MUSEUM

BY  
EDWARD H. THOMPSON

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## ARCHAEOLOGICAL RESEARCHES IN YUCATAN

THE Peninsula of Yucatan is divided into two nearly equal portions by a series of broken chains of hills extending diagonally in a southeasterly direction across the peninsula. Many of these hills are large rounded ledges of limestone, with bald heads and naked sides gleaming white under the tropical sun. Sometimes these otherwise barren places are covered with



FIG. 1.—MAP OF YUCATAN, SHOWING LOCATION OF RUINS.

patches of the thorny *tzubim* bushes, great sprawling cacti, and other spiny growths that seem to delight in thriving in the most unlikely spots and under the hardest conditions. Among these ungainly plants and upon these heated rocks the great crested lizard, the *kuk* of the native Maya, makes his home; and in the numerous crevices and loose rock piles the rattle-snake and the much dreaded *wolpoch*, a snake of potent venom, are found.



Not all the hills are of this character. There are long lines that seem to merge gently and almost imperceptibly into each other. These hills are clad from base to crown with forest trees growing on a soil which covers the limestone rock beneath. Time and erosion have filled the lower levels with a peculiar red soil, *kankab*, which is more or less covered with a black humus. The needed water supply of the region is furnished by *cenotes* fed by the underground rivers, *aguadas* or small land-locked lakes, and *haltunes*\* or pot-holes in the solid rock that often hold in store many thousand gallons of the clearest rain-water.

These intervals between the hills are the garden spots of Yucatan; in them I have ridden for hours through fields of tall grass and fragrant flowers, sheltered by trees laden with wild fruit. The hills of Yucatan are high only as regards local topography; in any other region less level they would be regarded as the merest foot-hills. They are easily traversed at any point, and they seem to have been the preferred sites for important centres of the ancient settlements. It was amid these hills and on terraced mounds in these fertile valleys that the ancient builders placed the now ruined groups of Labná, X'Kichmook, Tzulá, and Chacmultun. The hills themselves around and about these groups were favorite sites for important structures; nearly all the hills around Labná have served as structure sites, their tops have been levelled, their sides terraced, and their bases worked upon. The great structures of Chacmultun rise like embattled fortresses upon the crowns of two of the highest hills of the region.

Oxkutzkab is one of the largest towns of southeast Yucatan. It is placed at the base of one of the chains of hills. Its history and status before the coming of the Spaniards is not as clearly defined as that of Yzamal or Motul. Its name, however, is a promising one: *ox* (ramon tree), *kutz* (wild turkey), *cab* (honey). All these things are good to the native Maya, and it would seem to have been a kind of Maya Canaan. That it was, in prehistoric times, a centre of some importance is indicated by the mounds and other vestiges of ancient structures still visible. The hilltops, the many caves in the hillsides, and the level valley below, show evidences of long occupation. The present town is mainly built from the material of the ancient structures, and in the streets there still crop out the regular outlines of stone foundations, — vestiges of ancient buildings.

In the early days of the Spanish occupation, Oxkutzkab was of even more importance than now. In those days, when vehicles were not, and man and beast were the only burden-carriers, the town fathers laid out their roads and streets by rule. Secure in the knowledge that the mule would pass if he wanted to, and that man would have to pass any way, they laid out the town's ways where the measuring cord (*cordel*) ended, whether it was

\* The native word "haltun" means a hollow stone, and is applied alike to a natural pot-hole in a ledge or a stone hollowed by man into the form of a trough.



on level ground or the side of a rocky hill. One suburban street was made to pass over an ancient mound. This mound, when built by the ancient Mayas, covered the knoll of a ledge, and a large cavity in this knoll had been made to serve as a burial-place, which may well have been the cause of the mound being built. Centuries of traffic and the constant attrition of horny hoofs and scarcely less horny soles wore a narrow path into the mound material and down through it to the very ledge itself. Thus, in time, the grave was reached and the bones and vessels there were subject to the same erosive agencies. When I examined the place, the bones were mostly gone; a large vessel was nearly two-thirds worn away, and a portion of the thick rim had been pushed into the earth about it; on the bottom of the vessel I found some bone fragments and a light-colored bead of stone.

The hills around Oxkutzkab contain many caves, and some are of considerable size. Many of them bear signs of prehistoric occupation. I visited and explored thirty-two of these caves, but found not more than six that contained sufficient of interest to warrant serious investigation. Three miles to the east of the town and up in the hills, the native hunters had driven a *jaleb* (paca) into its hole in the hillside. Examining the entrance to see if the chances were favorable for driving the animal out by smoke, they were surprised to find that the material, the falling away of which had made the hole, was of lime cement, and that the actual entrance was of fair size, but had been closed by means of large stones and lime cement until it appeared to be part and parcel of the solid ledge of rock. The hunters, tearing away enough of the material to permit them to crawl inside, found themselves within the first of a series of chambers of unknown size and buried in obscurity. Finding the undertaking of smoking out the pig to be too large for them under the circumstances, they returned to the pueblo and told me of what they had seen. In due time and with suitable preparations I was at the cave and at work. Excavations made to bed rock, beneath the first foot of recent accumulation, leaf-mould, bat excreta, stalactite tips, etc., yielded a layer of lime-powder, ashes, and stones. Potsherds were thickly intermingled in the various strata from the lowest layer up to the surface mould. In certain places, where the torrents of the rainy seasons had entered and made their path, a layer of solid ashes and potsherds two feet thick exists almost entirely free of the dark earth mixture. Above this is a layer of dark earth, a sedimentary deposit brought, like the ashes, from an upper level, but at a more recent date. A clay spindle whorl and a cylindrical bead or amulet, also of clay, were the principal objects secured. There were very few *haultunes*, or stone water-troughs. Scattered fragments of human bones were found; also several human teeth, but none were artificially worked, and they were so decomposed that only the semi-lucent enamel remains. Stone walls, the remains of ancient barricades, were similar to those in the Cave of Loltun.

In a hillside to the southeast of the pueblo is "The Cave of the Dead." Entering the narrow mouth of the cave and following a rough inclined surface for a distance of about forty yards, we came to a crevice in the floor. A lighted candle lowered burned clear, and revealed firm ground about nine feet below. Entering with some difficulty, I found myself in a rough, tunnel-like chamber, with the floor sloping upward and pillars of beautiful brown crystals of calcite glistening and scintillating in the light of the candle. The floor was also of crystalline calcite, and in its structure were imbedded and clearly visible many human bones. Some had projected above the glistening surface, but these had been hacked or broken off. So far as the chamber floor could be examined, it was covered with human bones.

A portion of the floor, owing to impurities, is of an opaque character, but investigation proved it to be also thickly covered with bones. For some reason skulls or their fragments do not seem to be as numerous as they should be. I asked of the native hunters who first found this cave if they had found and carried away or destroyed any skulls, or if they had known of any one who had done so since the discovery, and they unhesitatingly answered to the contrary. Portions of skulls were, however, found, and teeth as well. The frontal bones were not flattened nor were the teeth ornamented or filed. Fragments of vessels of unmistakable antiquity were found in numbers, intermixed with the bones, and clearly indicate that these bones are not of modern burial. In places the dripping water has worn away instead of depositing lime material, and in the basins thus formed are found bones, pebbles, and potsherds, all equally worn and rounded by the dripping and rippling of the water around them. The problems presented by the finding of this accumulation of human bones in such a strange situation are difficult to solve. From the fragments encountered it is clear that many earthen vessels had been placed in the cave, and it may well be that many persons seeking refuge from some sudden invasion were caught entrapped by their enemies and so perished; or, this may have been a general burial-cave. But these caves are full of surprises by reason of their natural formation, and perhaps future investigation which I have in view may solve the problem. The native hunters who first found and entered the cave say that they found several vessels of hard burned clay. They were perfect when found, but when taken home were given by their wives as playthings to their children. An earthen vessel in the hands of a native child soon ceases to be of value to science.

Seventeen other caves were visited, and many contained potsherds and the like, but as the results are simply a repetition of those obtained in previous years at the Cave of Loltun, and as the report on that cave has been published,\* I shall not attempt a detailed description.

\* *Memoirs of the Peabody Museum*, Vol. I, No. 2, 1897.



While we were packing for our final trip to Xul and were remarking that this was probably our last trip to Oxkutzkab, some native hunters came in and told us of a large cave away off in the distant hills, with many figures upon its walls, and also of a large, square-cut panel, deep cut and as yet clearly outlined. My plans were made and it was then too late to change them, but some day I may be able to find out the truth of these stories.

## XUL

THE pueblo of Xul stands like a sentinel directly in the path of the Sublevados, or independent Mayas, now being brought into the civilized fold by the Mexican troops. This pueblo has probably received more attacks from these valiant natives than any other pueblo of its size in Yucatan. Time was when if a month passed without the yells of an attacking horde being heard at Xul the fact was noted as a surprising circumstance. Whether the present pueblo inherited the name as well as the real estate of its predecessor may never be known, but, like Oxkutzkab, it certainly does occupy the site of what was once an ancient group of some size. It was probably a centre of minor importance, yet it was of sufficient size to have furnished most of the building material for the thirty or more stone houses of considerable dimensions, and the large stone church, that once formed the nucleus of Xul before the uprising of the natives. It was then a town of importance and a mart for the products of the region. A small structure, once used as a chapel, and later, when warfare claimed all, as a garrison, has upon its three small towers three stone figures taken from the houses of the ancient pagans to serve as witnesses and adornments to the house of the conqueror's God. The central and largest figure is a human head enclosed in a serpent's jaw. The natives say that the features are those of a very old woman, and I am forced to confess that appearances seem to bear out their assertion. Upon the two minor towers, to the right and left of "La Vieja," as the natives style the central figure, are smaller figures resembling monkeys. None of the present inhabitants of the pueblo could tell where these figures came from, or when they were placed in their present position. "They were always there," an old Indian sagely informed me.

Several of the chultunes\* that helped to form the water supply of the ancient centre were found and carefully examined. One of these, found while tracing out an old site in the centre of the pueblo, was almost intact, having been preserved by the débris that had been heaped upon and over its mouth in the very earliest days of the pueblo. The chultun was bottle-shaped, nine feet in diameter and eight feet high from floor to

\* See *Memoirs Peabody Museum*, Vol. I, No. 3, Cambridge, 1897, "The Chultunes of Labná."

roof. A portion of the ceiling and walls had caved in, no one knows how many centuries before, and the detritus from above had gradually accumulated until the level surface gave to the casual view no signs of the structure concealed beneath. Cautiously bracing the time-weakened walls, we made a thorough investigation of this interesting structure. The chultun had evidently served as a burial-chamber, and it can well be that the chamber wall had been purposely broken in over the remains of the person thus interred. Directly under the white material of the fallen walls were found human bones. They were so much decomposed that they were more like lines of lime dust than bones; the teeth were those of a middle-aged person, and while some were still quite well preserved, most were recognizable only by the enamel that still preserved its outline and hardness. None of the teeth showed signs of being filed. Two earthen vessels of the usual type, one shallow and one bowl-shaped, were found crushed to fragments by the fallen material from above. Besides these vessels, which I always expect

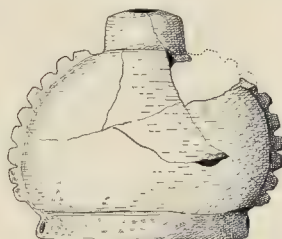


FIG. 2. — POTTERY VESSEL FROM  
CHULTUN.  $\frac{2}{3}$ .

to find in a grave, we had the extreme good fortune to find one of a type rarely encountered in Yucatan, although somewhat similar vases are not uncommon among the graves of Honduras and Guatemala. It is of the usual cream-white color, oval at base. A side view, of two-thirds size, is given in Fig. 2. There are on record but three other examples of vessels of this kind having been found in Yucatan. One of these was the property of the former bishop of Yucatan, Doctor Carillo; a second is in the Museum of Merida; and a third is the property of

Mr. Ernesto de Regil, a gentleman much interested in the archaeology of his native State. They are, however, invariably so small that they would not hold a pint of liquid.

#### TZULÁ

Six miles to the south of Xul lies the ruined group of Tzulá. Only one *colkub*, or native planter of maize, could give me a name for the group, and he said that the only name he had ever heard given it was that used by his companions in the forest near by, and that they had called it "Tzulá." It is, as a group, very much destroyed. The principal building was once an imposing structure of many chambers. Several of these rooms, though now almost destroyed, still show traces of the paintings that once covered the walls. In one chamber only, the paintings, owing to their protected position and other fortunate circumstances, are in a condition to be copied



and carefully studied. The photograph (Plate I), taken under some difficulty, shows a portion of these mural paintings more clearly than I had reason to expect. The negative and print have had no retouching. The figures are of different sizes, the smallest being about nine inches, while the largest is eighteen inches in height. The figures are outlined in dull red and filled in with various colors. On Plate II a copy of the two upper rows of figures, so far as they can now be made out, is shown about one-sixth natural size.

The natives tell me that buried in the forest is a *cenote* of unknown depth, and that from somewhere within the darkness of the great chamber there comes up a mighty sound of churning, rushing waters. It is probable that an underground river at this point makes a fall to a lower level, and so causes the sound of falling waters, — a sound unknown upon the level upper surface.

#### CHACMULTUN

A FOUR hours' ride on horseback over a rough but interesting trail carried me from the ruined group of Tzulá to that of Chacmultun. While en route we crossed level savannas covered with a thick green sward and dotted with clumps of wild *nancene* trees laden with the ripening yellow fruit. Once we surprised a bevy of young and very slightly dressed Indian maidens. At sight of us they fluttered down from the trees and quickly hid in the tall grass as gracefully and as easily as young quail. A short distance farther on we came upon the older people, rather more undressed, if possible, but much less disturbed by our unlooked-for appearance on the scene. They were engaged in their yearly task, or rather, annual outing, of gathering the wild *nancene* fruit. Some of the ripest and finest fruit they carry upon their heads to the distant pueblos, where they find ready purchasers. The townspeople not only consider this fruit delicious to eat raw, but they also preserve it in rum, as a great luxury. The greater part of the fruit is sun-dried by the gatherers. When this is done as it should be, the fruit will keep in good condition indefinitely. When the *nancene* season is on, the natives lead a picnic life; they eat and sleep beneath the shade of the trees, and all their simple needs are attuned to this fact. It is a season of gaiety for the young, and quiet pleasure for their elders, who, with cheerful gravity, take upon themselves the tedious work of caring for the drying fruit while the younger ones are gathering the juicy globes. It is in these savannas and hills that we find the really primitive Maya of to-day, and it is here that he should be studied. Here he has been undisturbed from time immemorial; the lands that he holds have been his by the right of continued possession, and in many cases documents acknowledging this were given by the Spanish authorities. As landowners, indebted to no

man, and tilling their own soil in their own primitive, yet, for them, sufficient way, they have not learned the servile ways and humble bearing of the plantation people and the people of the pueblos. They and their houses are evolved from long ages of adaptation to local environments, and the type of both has become so fixed that any change in them would give me the same feeling of surprise that would come on seeing a robin build the nest of a swallow, or a ground dove follow the habits of a night-hawk. Their houses, their tiny gardens of tiny herbs raised on scaffolds, and their stores of seed corn as neatly packed in the forks of suitable trees as chestnuts are packed by Nature inside of the burr,—all these are a part of the natural life of the people. They are so much a type by themselves that it is a wise and necessary work to make sufficient note of them and their life's ways while there is yet time, before the whistle of the locomotive drowns the wild notes of the songs, and the smell of the coal smoke stifles the odor of the dry wood burning in the *koben* of the tiny *ná*.

Upon the other side of the long range of hills, towards the civilized portion of Yucatan, lies Tekax, the shire town of this frontier province. The tales of atrocity and bloodshed recounted by the survivors of the raids when Tekax was all but depopulated by the Sublevado Maya are terribly emphasized by the ruined houses, whose stone fronts still bear the marks of the pitiless destroyers. The place is now the centre of bustling activity. The massing of the Federal and National troops against the Sublevado Mayas has caused a phenomenal change to come over Tekax as I knew her in former years. The locomotive now whistles within her confines. The booths of venders of everything vendible line her former grass-grown streets. Groups of uniformed men and brightly dressed women saunter along. War time is very much in evidence. Prices are fabulous and all is bustle and confusion. The comparative proximity of Tekax, with its now restless and adventurous population, to Chacmultun has worked serious havoc to archaeology. Excursions have been organized by adventurous parties who have crossed the long hill-chain on horseback and reached the ruined groups of Chacmultun. The inevitable result has followed: precious bits of mural painting have been scraped off, and the clean white space thus made upon the wall has been utilized to inscribe visitors' names and mongrel poetry. It is a piece of great good fortune that last season (1900) we copied all the most important parts, including the portions now erased. The work this year (1901) is to study and copy all hidden and obscure paintings that can possibly be made out.

The name of Chacmultun signifies the "Red-stone hills." I do not know its origin. The natives of Xul told me of its existence when I discovered X'kichmook over a decade ago. My line of work took me in other directions and I had no chance to study it until 1899, when I made my first visit. Its proximity to Tekax has caused it to be more or less known to the



hunters of that place. In times past, certain persons of Tekax, thinking that the mysterious pile of stone must hold concealed golden treasures, dug great holes in the roof terraces. Finding nothing, they gave up in disgust, and the heaps of stone they left beside the pits they dug are still to be seen, moss-grown and covered with trees.

Five buildings of this group are yet standing. Four are of large size with many chambers, some of which are yet habitable. One building is practically a four-storied edifice. Another stands upon the crown of one of the highest hills of the region, a great mass of solid rock, and the gray stone of the structure upon its crown looks like the embattlements of a fortress, as enduring and as massive as the hill itself. Perhaps the most important of the four great structures is the one we call the Palace. It was, if we include the small upper rooms now in utter ruin, a two-storied structure, built, like the others, upon a hill, but having less altitude than the other three. This structure is Number 1 of the plan (Plate III). The fifth structure is a small one as compared with the other four. Its front is ruined, and its aspect is very commonplace.

EDIFICE 1, or THE PALACE (Plate IV, 1, 2, 3, and Figs. 3, 4), was evidently built upon the crown of a hill lower than any of those supporting the other great structures. The hill had also been cut down, the top levelled off, and the base terrace built out to a degree unusual among the neighboring groups of ancient structures. This was rendered necessary by the number of chambers that the ancient architect evidently intended the structure to contain,—chambers outlined but not built and not shown in the plan. From the number of structures, all over Yucatan, that I find in this condition, I am beginning to believe that the plans of the old architects did not call for absolute completion, but that they left a certain part to be worked upon as the needs of the time called for.

The higher tier of chambers, forming the superstructure, were, like those similarly placed at Labná, few in number, insignificant, and withal so ruined that a detailed description is impossible. A wide, well-made stairway on the south connects with the tier of chambers below, in the first story of the Palace edifice. In this first story some of the chambers are double, and several have handsome corridors with circular pillars instead of plain sustaining-walls. This, as will be seen by reference to the photograph (Plate IV, 3), gives a pleasant artistic effect to the whole front. This effect is heightened by the recurring serpent motive that forms the chief ornamental zone of the façade. At regular intervals are niches in which were once placed stone figures which were undoubtedly pregnant with religious meaning. The curious adornment upon the narrow projecting band, or directly over the ornamented zone of the façade, is very unusual. It may well be, as I am inclined to think, a symbol of phallic worship. The symbol is not regularly recurrent, but, as will be seen, there

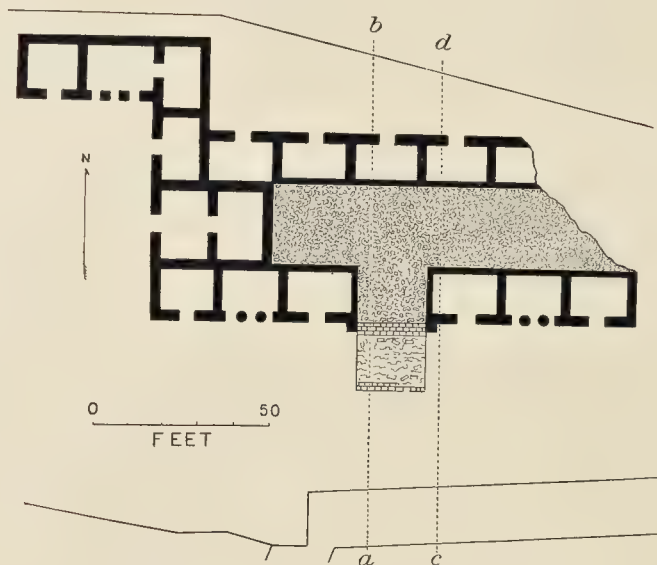
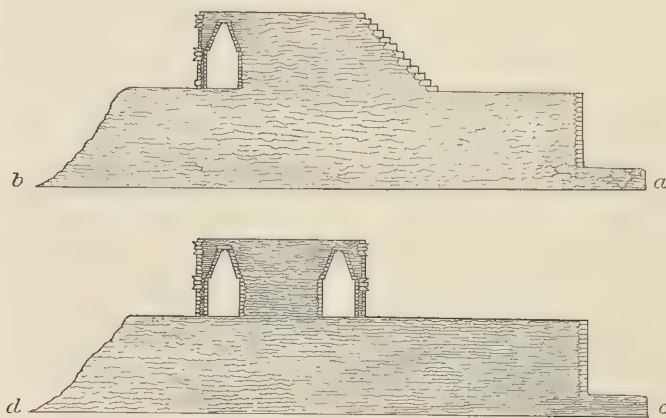


FIG. 3. — CHACMULTUN: EDIFICE 1. GROUND-PLAN.

FIG. 4. — CHACMULTUN: EDIFICE 1. SECTIONS THROUGH *a-b*, *c-d*. FIG. 3.



is a motive when the continuity is broken. The extreme right wing of this story, facing the east, is so destroyed that only a portion of a wall and two doorways still stand. The extreme left wing is also reduced to dislocated masses of masonry.

EDIFICE 2 (Plate VI, 1, and Fig. 5) is a small structure, built, as will be seen by reference to the general plan, upon the same general terrace, but at a slightly lower level than that of the Palace. Its front, now almost entirely fallen, presents no visible detail of interest. Its central core is so extraordinarily thick and massive that one is almost irresistibly led to believe, with the treasure seekers before mentioned, in the existence of a hidden chamber within its space. Due investigation proved this to be an illusion. The core, or hearting, is a solid mass of rubble work, large masses of rock being used as material. I believe that this unusually massive core was the preliminary work to the erection of a second story that for some reason was never car-

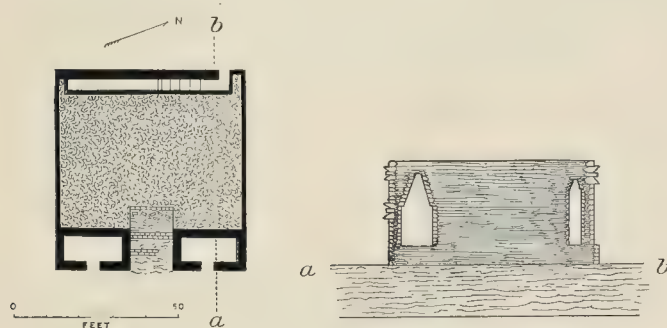


FIG. 5.—CHACMILTUN: EDIFICE 2. GROUND-PLAN AND SECTION.

ried out. Upon the west side of this structure is a wall completely blank, save for one small window-like opening in the north end about six feet up from the foundation. No stairway exists, nor are there any signs that a stairway once existed at this point, yet the opening gives entrance to a long narrow gallery running the entire length of the edifice and ending abruptly in the sheer inner portion of the outer wall. This curious gallery has near the entrance a series of steps that carries it up to a level several feet higher than the small opening giving entrance from the outside. The walls and roof of this vault or gallery are of the usual style, and well built, though narrow, as will be seen by reference to the plan and sectional drawing (Fig. 5). I can at present assign no reason for the existence of this peculiar vault that begins and ends so apparently without use.

EDIFICE 3 (Plate V, 1, 2, and Figs. 6, 7) is placed upon the same great general terrace as is the Palace, but upon a level about ten feet below that

of the first story of that structure. So near is it to the Palace, in fact, that if the plan did not tell another story, one would be inclined to call it the

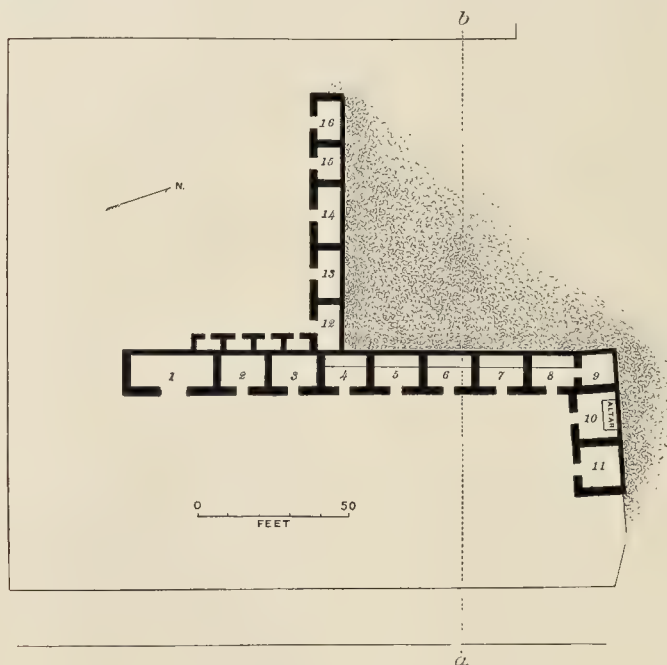


FIG. 6. — CHACMULTUN: EDIFICE 3. GROUND-PLAN.

first story of the Palace instead of a separate structure. The chambers of this edifice are much destroyed, and are of smaller size than those of the Palace just described, but they contain the most interesting portions of the entire

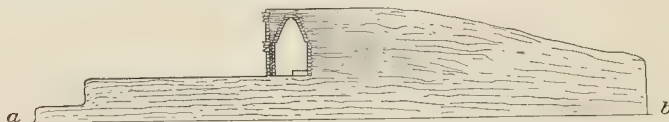


FIG. 7. — CHACMULTUN: EDIFICE 3. SECTION *a-b*, FIG. 6.

group. It is in one of the rooms in this line of chambers, the one marked 10 in the ground-plan (Fig. 6), that I found the mural paintings shown on



Plate VIII. Excepting the famous mural paintings of Chichen-Itza, these are the most nearly perfect of any yet found in northern Yucatan.

Chambers 1 to 3 of this structure have their roofs and the upper portion of their façades fallen in and so destroyed that a detailed description of their appearance would be useless. Their walls were originally more or less covered with paintings. Under the line of cornice outside and under the spring of the arch inside, portions of bright red and blue are still visible. Local excavations showed small raised platforms against the back walls.

Chamber 4 has its inner walls still perfect, and the roof is to a great degree still in place. The door to the chamber was buried under an immense mass of wall-stones and the débris of some large-sized structure that had fallen upon it from above. After much work the entrance was cleared. The chamber was of ordinary size,—fourteen feet two inches long, ten feet six inches wide, and precisely twelve feet high. Opposite the entrance, extending entirely across the room and so large as to occupy nearly half the floor-space, was one of the platforms, or altars, before mentioned. As this is the most perfect one in this group, I shall attempt a somewhat detailed description of it (Plate VI, 2). The top, or upper surface of the platform was made of stone and lime cement, a hard and smoothly finished surface running the entire length of the room and having a width of four feet six inches. It was faced by a band of smooth-cut stone six inches wide, and projecting four inches over the stone supports beneath it. These supports were each made of smooth blocks of stone, well cemented in their places and united overhead by large stones, each two feet four inches thick. This substructure supported the structure of the altar. In the centre of each of these supports is a carved head, or rather a mask of a human face, each different in character and decidedly different in expression. The first has a saturnine cast of features, and a large pair of canine teeth projecting over his under lip. The second had at one time some kind of a projection from the forehead, near the base of the hair, that extended down to and upon the nose. This adornment, attribute, call it what you will, has been broken off at some unknown period, carrying with it the nose and a part of the upper lip. The other two masks are too much defaced for description. Between these supports are large hollow cavities, each painted red inside, with rounded corners, extending under the platform. These curious platforms have been one of the unsolved problems which I have had constantly in mind ever since I first commenced my studies among these ruined groups. That they have some very general use is evident from the fact that they are a constant factor in all the ruined groups. Not all the chambers in all the groups have them, but I have yet to find a structure of any size without at least one chamber having one, and often two, one at each end.

Chamber 8 is the most perfect in condition of any yet found upon this

tier. Upon the side opposite the entrance is a long narrow platform of the class above described. This chamber has an inner entrance connecting with a smaller chamber. Both of these rooms bear clear signs of having once had paintings upon their wall-surfaces. A leak in the roof immediately overhead and the consequent dampness is responsible for their almost utter destruction. In places the lines of color show forth with the greatest clearness, but this simply tantalizes the investigator, for no amount of patience can produce intelligible outlines.

The small inner chamber (9) has no features of special interest except that, small as it is, it has as many as six stone projections in the form of feet in various places upon the wall. Were these seen in the houses of to-day we should unquestionably call them hammock hooks,\* we can only say that they were probably used to suspend articles. Very few chambers, even those of considerable size, have more than four of these wall projections. It may be remembered that in my memoir upon the ruined group of X'Kichmook,† I mentioned that one building in the group was furnished with the same kind of wall projections.

Continuing along the line of the façade and at right angles to the chamber just described, we reach the entrance to Chamber 10:—

*The Chamber of the Paintings.*—This chamber is fifteen feet long by ten feet two inches wide, and thirteen feet ten inches high. Directly in front of the entrance, facing the south and built against the rear wall, is a raised platform of cut stone and smooth, hard-finished floor-surface. It is the same character in structure as previously referred to. Upon all the walls of this room there have been mural paintings; even the vaulted ceiling bears traces of painted figures and colored designs; but the hard stucco that once covered both wall and ceiling has nearly disappeared, and only in places are traces still left to suggest the art treasures now lost. The rear wall, against which is built the raised platform, has portions of its surface in a measure preserved, and fortunately many of the figures are still so perfect that they can be faithfully copied (Plate VIII). Some portions of the roof ceiling, and of the walls as well, have been preserved from destruction by a thin coating of lime, incipient stalactites, which, while it veils the painted surface, yet affords us the satisfaction of knowing that the paintings are there, hidden under the lime coating. From the fragments of colored lines still in place, by reason of their sheltered position under the spring of the arch and just above the lintels, we are able to obtain some data unobtainable otherwise. Just above the spring of the arch are traces of a painted band six inches wide, having a centre of red and a clearly visible stripe of a purplish

\* Hammocks are said to have been introduced by the Spaniards, who first found them at Jamaica, if I am not mistaken.

† Field Columbia Museum, Anthropological Series, Vol. II, No. 3, 1898.



hue nearly an inch wide on each side. Each wall-space seems to have been divided into three bands, or zones, running horizontally, and on each wall the figures depicted upon each zone seem to have no connection with the other zones, except near the centre of the wall, where a complicated black figure runs from the third, or highest zone, down to the second, or middle zone, in a curious and apparently erratic manner. This subdivision into distinct zones, but joined in the centre by a curious figure, strikingly resembles the bas-reliefs upon the wall of the lower chamber in the "Temple

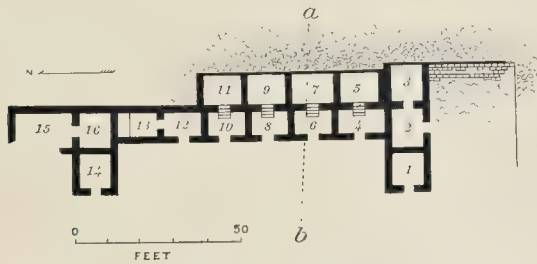


FIG. 8.—CHACMILTUN: EDIFICE 4. GROUND-PLAN

of the Tigers" in the Chichen-Itza group. The zones upon the different walls did not correspond, the one with the other, so far as could be seen, either in position or design, and the subjects depicted seemed to be distinct. Not only upon the inner surface of the lintels, but on the outer faces as well, were painted scrollwork designs in bright red and blue. Considerable traces of both these colors are yet clearly visible. The portions preserved best are directly under the deeply overhanging cornice, and to this circumstance the design owes its permanence. Some of these painted figures strikingly resemble portions of the Codices, but others, especially those in black, are unique among the mural paintings known to exist in Yucatan. Many of the figures have a slight resemblance to those of the ancient East.

EDIFICE 4 (Plate VII, 1, and Figs. 8, 9) is five hundred feet east of Edifice 1. It stands out imposingly like a fortress upon the sheer edge of a steep hill of solid naked limestone over a hundred feet high. The western face, fronting the steepest part of the hill, is almost perfect, the extreme north room only being unroofed; the other façades are in ruins. Seven entrances upon this façade look out upon the west. Four of these entrances open into suites of two chambers each, one behind the other. Each rear chamber is raised four feet



FIG. 9.—CHACMILTUN: EDIFICE 4.  
SECTION a-b, FIG. 8.

above the floor of the front chamber and entered by a flight of stone steps, four in number.

Chamber 8 evidently had its walls more or less covered with designs of a scrollwork character, mostly linework done in a deep, almost purple, black. The fallen wall-surface has destroyed all hope of reproduction except around the doorway leading into the upper chamber. Here was found and copied the design given on Plate IX. The originals are drawn in strong even lines showing the master hand, and the artist about to copy them stood for some time in admiration of this vestige of the work of the prehistoric artist. Most of the rooms in this edifice have had their walls covered with designs in colors and in linework, but the black linework seems to have predominated.

Chamber 12, unlike those previously described, has the second room on the same level, and the entrance is from the left instead of in the direct rear. Both rooms have altars opposite their entrances. That in the first room is so destroyed that only its outline exists, but that in the inner room is as perfect as if made yesterday. It is faced with handsome cut and squared stones; the cement forming its upper surface is unusually thick, nearly six inches of mortar over the rubble filling. I found three apartments, or niches, beneath it.

EDIFICE 5 (Plates V, 3; VII, 2, and Figs. 10, 11) is the four-storied structure before mentioned. It is so constructed that while three of its stories are placed upon terraces built out upon the side of a hill, the fourth story crowns the apex of the hill itself. Thus the back of the structure is the entire height and width of the whole face of the hill and its natural slope. A series of broad stairways lead from the platform of the lowest terrace up to that of the highest. The stairways of this, as well as of the other groups of the region, do not seem to have had the sidebands of the serpent motive, as did most of the stairways at Chichen and Uxmal. A simple band of worked stone was carried along to the finish, with no special lines of ornamentation.

A great tree-trunk entwines the stones of one side of the lower stairway, as can be seen by the photograph. The plan of this edifice and the accompanying photographs give the various details and the general idea far better than any words of mine can. No lines of mural paintings are left, if indeed they ever existed.

The scenic effect produced by these majestic structures, crowning the hills and shaping their sides, must have been imposing. Even to-day, hidden as they are by great tree growths and jungle tangle, ruined and deserted, one involuntarily catches his breath with a feeling akin to awe as he views them for the first time.

These massive structures are threatened with ruin, and at no late date, unless some strong hand is stretched forth to avert it. The great stone



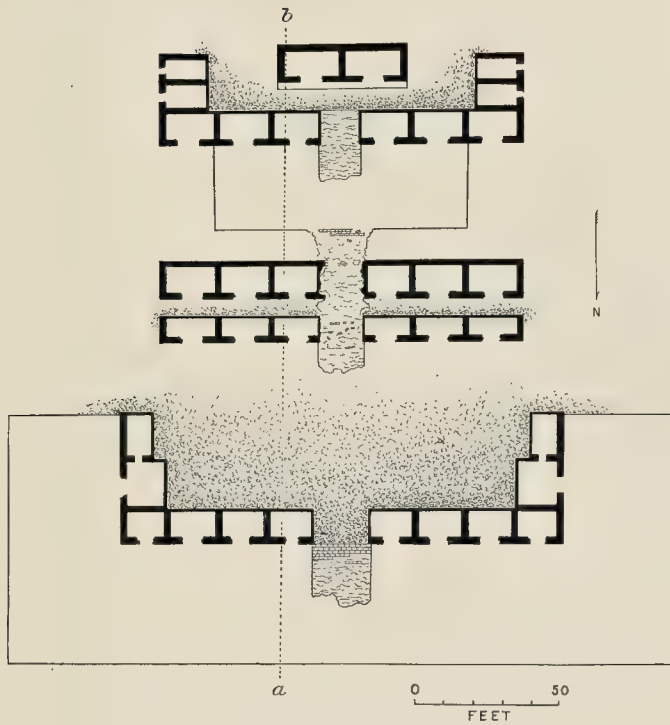


FIG. 10.—CHACMILTUN: EDIFICE 5. GROUND-PLAN.

FIG. 11.—CHACMILTUN: SECTION *a-b*, FIG. 10.

plates that case the walls are made of a handsome red quartzite, like fine-grained sandstone in its appearance and character. It is a material that makes the finest *ká-tunes* or stone mills for the grinding of the native corn. The natives of the region have used these buildings for quarries no one knows how long. They have hewn these handsome fine-grained stone slabs from the walls, and then squatting in the shade have chipped and pecked them into shape, and then carried them home for use or for sale or barter in the larger pueblos. To such an extent has this been carried on, and for so long a period that the adjoining terrace is covered with chips and rejected slabs, while great stretches of all the structures are denuded of the protecting stone surfaces. The remaining structure is thus made hardly more durable than its prototype the native palm-thatched \* *ná*. Once deprived of this hard stone covering, the inner stone-work is exposed to the countless destructive forces that would otherwise be unable to reach it in centuries of time, during which man will have arrived at a period of mental growth when the preservation of these structures will be an instinctive duty, instead of, as now, a constant struggle. At Chichen, and I think at Labná and Uxmal as well, such destructive agencies are no longer allowed to exist; but in the groups so far from all restraint, and free to the desires of ignorant natives who view these wonderful structures simply as *xlabpakes* (old walls), what hope is there that the destruction will not go on to the end, especially as the railroad draws nearer and the demand for the stone mills increases?

MÉRIDA, YUCATAN,  
July, 1902.

\* It has been stated that these great stone structures show no signs of development from any primitive type. This statement has been made so many times that it has been accepted by most archaeologists and has served as data for the belief that the plans of these structures were brought from afar, and were settled forms showing no process of development. This seems to me an error, as I think these great structures afford the evidence of evolution from the native thatched hut similar to the *ná* of to-day. In my report on "The Arts of Ancient Builders," now in preparation, I am endeavoring to make this clear.









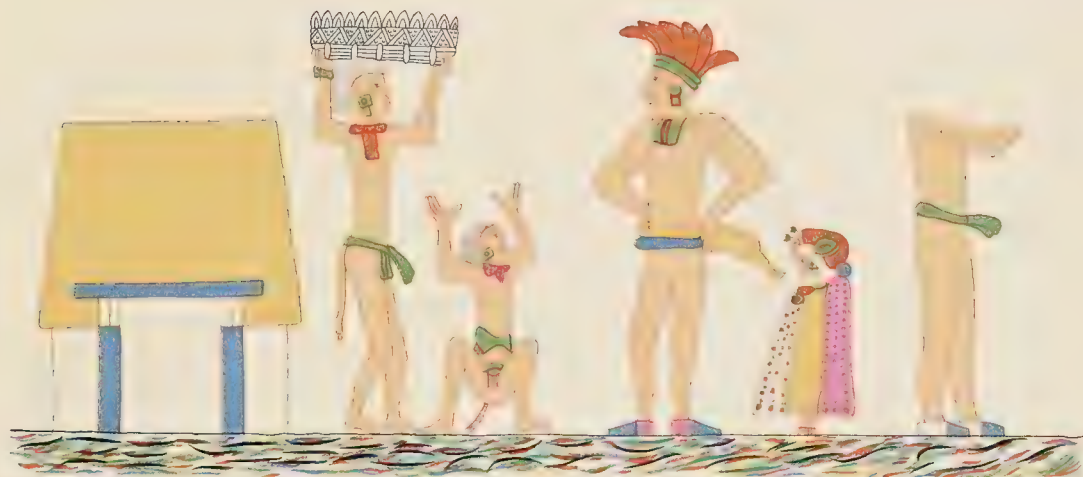
TZULÁ: INTERIOR OF CHAMBER SHOWING WALL PAINTINGS







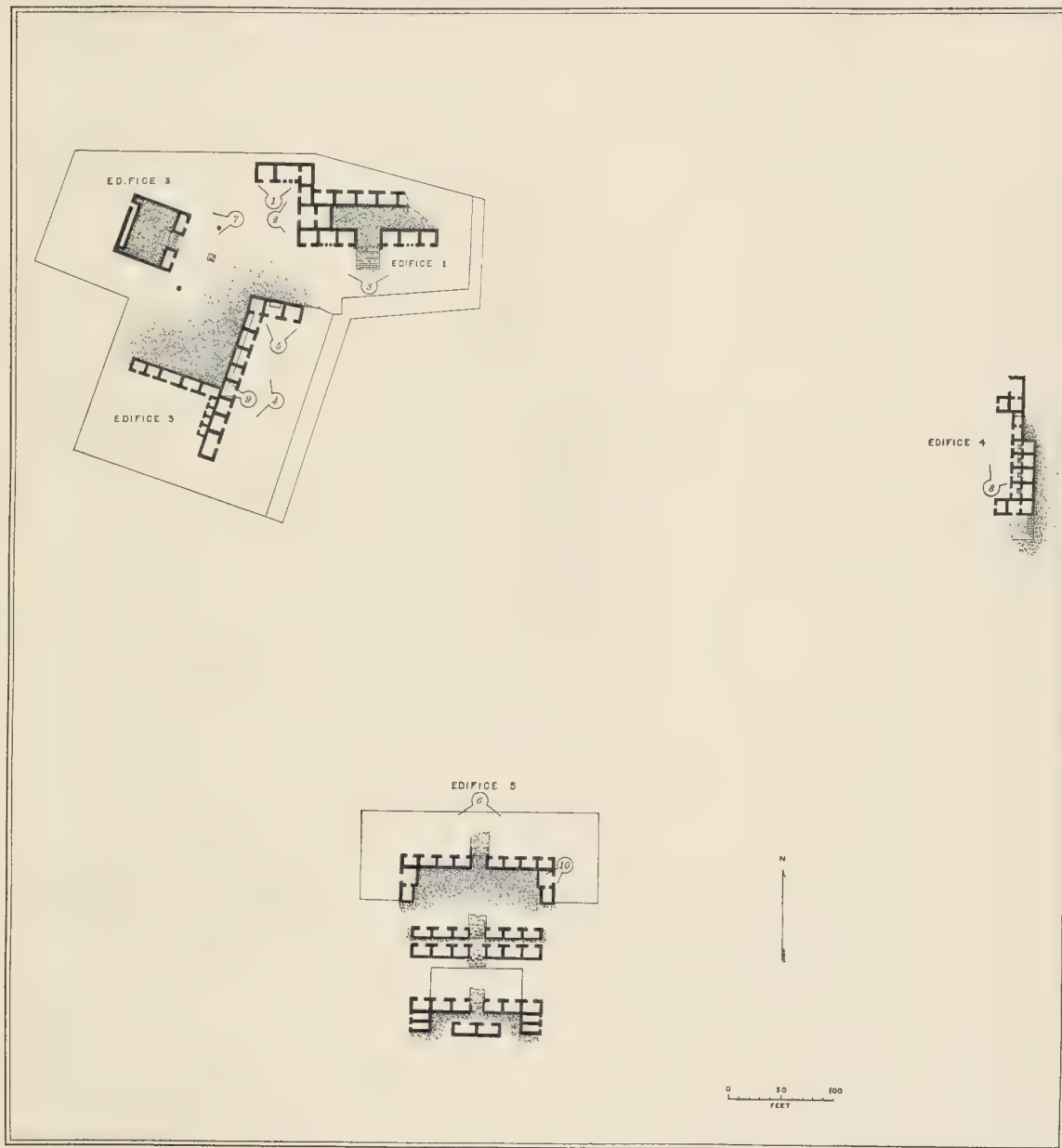




TZULÁ: PAINTINGS UPON STUCCO-COVERED WALL OF CHAMBER. (ABOUT 1-6)



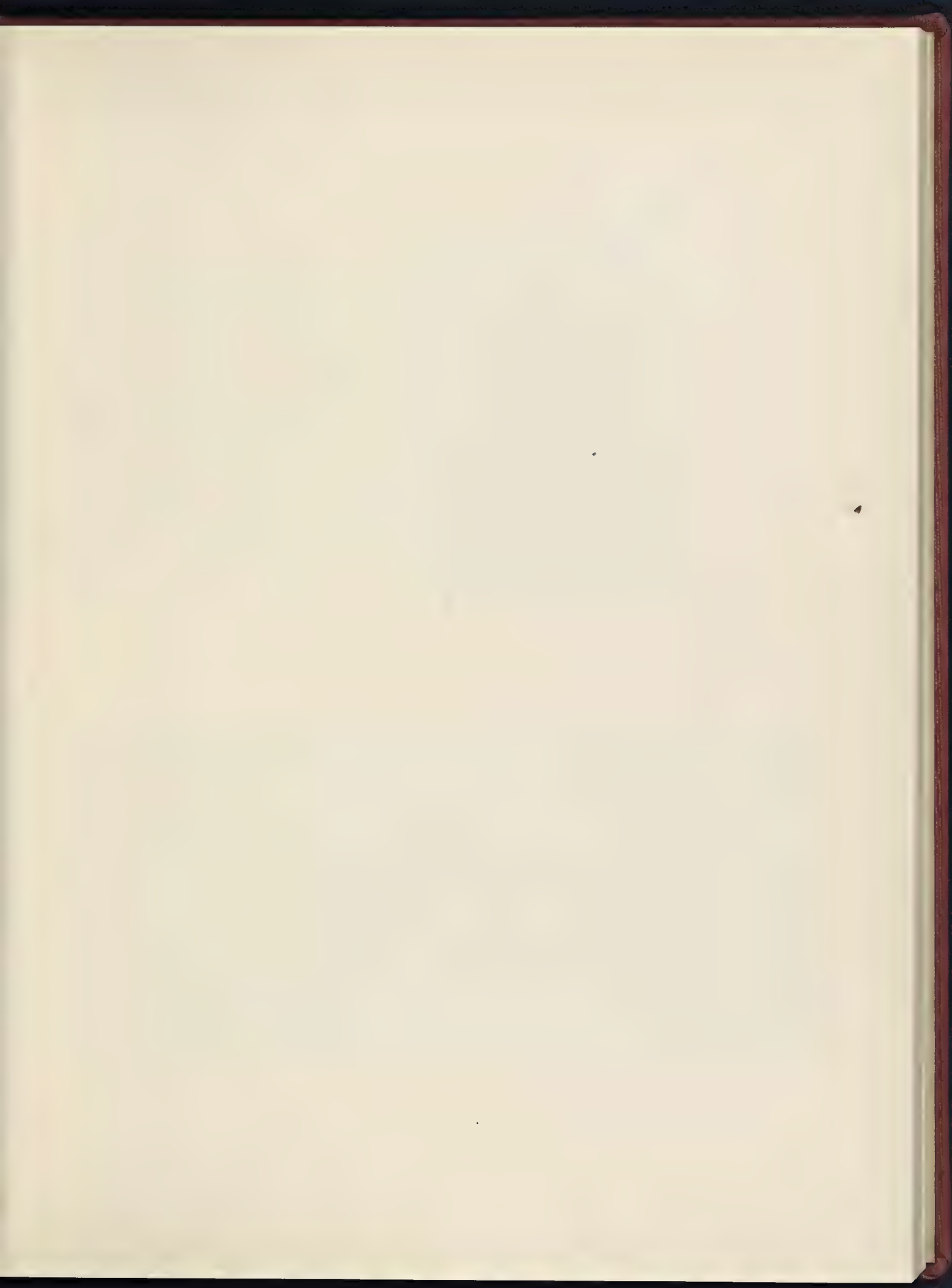




CHACMULTUN: PLAN OF THE RUINS.

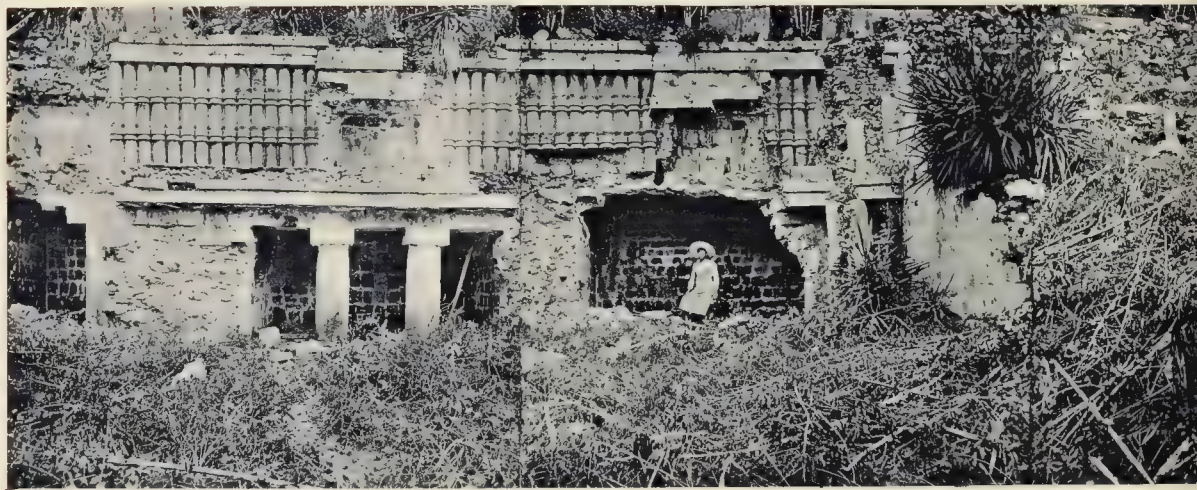








1. CHACMULTUN: EDIFICE 1, SOUTHERN FRONT OF WESTERN WING. (1)



3. CHACMULTUN: 1





2. CHACMULTUN. EDIFICE 1. WESTERN END. (8)



1. FRONT. (9)









1. CHACMULTUN: EDIFICE 3, EASTERN FRONT.  
CHAMBERS 1-8. 



3. CHACMULTUN: EDIFICE 5, FRONT.





2. CHACMILTUN: EDIFICE 3, SOUTHERN FRONT OF NORTHERN WING.  
CHAMBERS 10-11. ⑤



NORTHERN STRUCTURE. ⑥











1. CHACMUTUN: EDIFICE 2. FRONT.



2. CHACMUTUN: EDIFICE 3. RAISED PLATFORM IN CHAMIER 4.



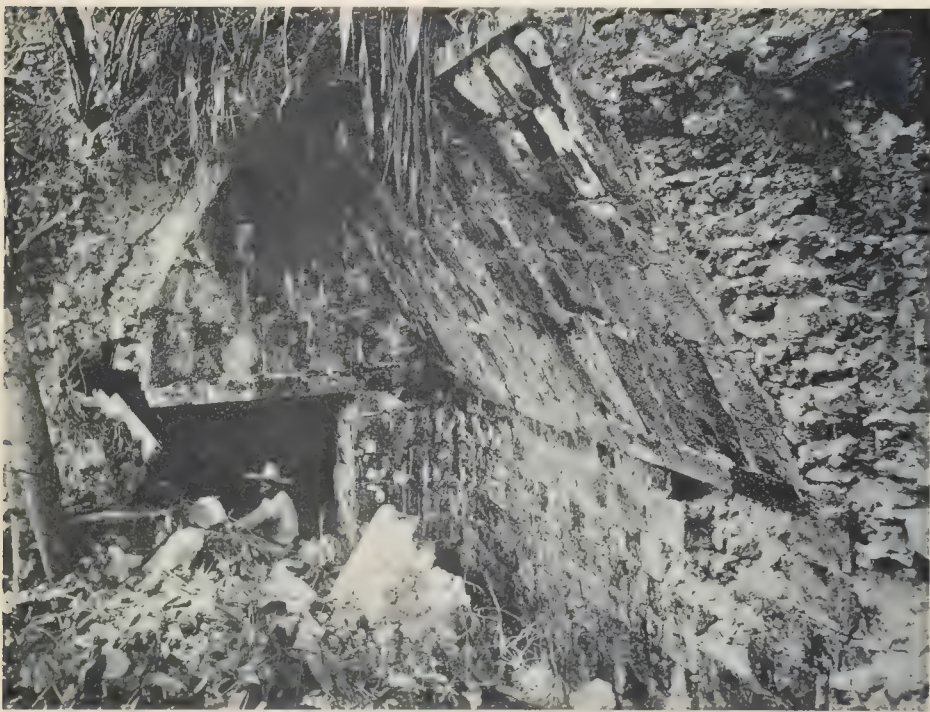








1. CHACMULTUN: EDIFICE 4. PART OF WESTERN FRONT.



2. CHACMULTUN: EDIFICE 4. CHAMBER AT EASTERN END OF NORTHERN STRUCTURE.









CHACMILTUN: EDIFICE 3. PAINTINGS U



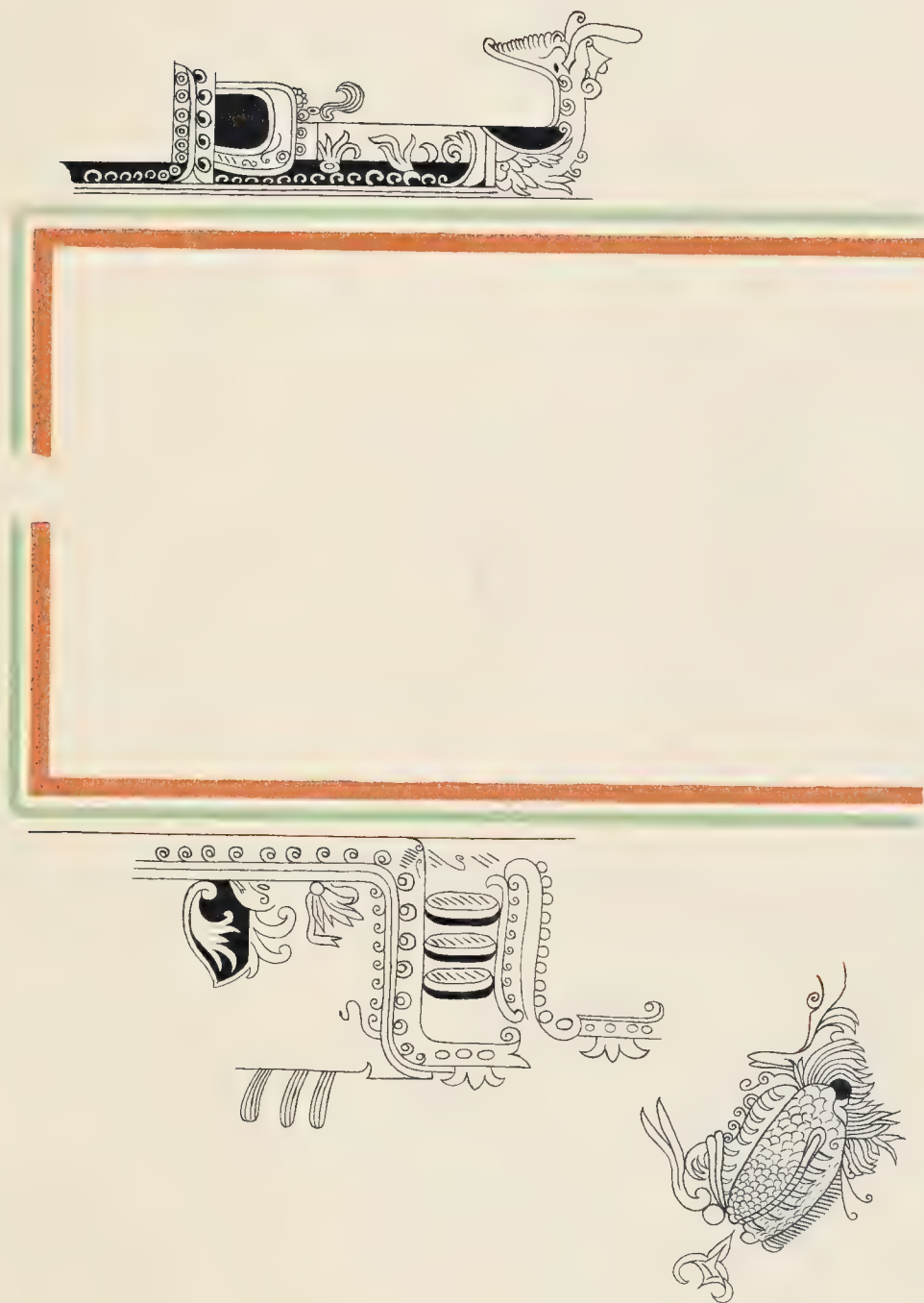












CHACMULUTUN: EDIFICE 4, CHAMBER 8, PAINTING AROUND UPPER PORTION OF DOORWAY LEADING TO CHAMBER 9. (ABOUT 14)



PEABODY MUSEUM  
OF  
AMERICAN ARCHAEOLOGY AND ETHNOLOGY  
HARVARD UNIVERSITY

MEMOIRS

VOLUME III

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## CONTENTS

### No. 1. ARCHAEOLOGICAL RESEARCHES IN YUCATAN

By EDWARD H. THOMPSON

### No. 2. THE RUINS OF HOLMUL, GUATEMALA

By RAYMOND E. MERWIN AND GEORGE C. VAILLANT













POLYCHROME LACQUER BOWL AND COVER, OVERLAID WITH SECONDARY PLASTER DECORATION

MEMOIRS  
OF THE  
PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND  
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VOL. III — No. 2

---

THE RUINS OF HOLMUL  
GUATEMALA

BY  
RAYMOND E. MERWIN AND GEORGE C. VAILLANT

WITH THIRTY-ONE ILLUSTRATIONS IN THE TEXT  
THIRTY-SIX PLATES AND FRONTISPIECE

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## RAYMOND EDWIN MERWIN

Dr. Merwin was born in Humboldt, Kansas, November 21, 1881, and died in New York City November 25, 1928.

Receiving his A.B. degree from the University of Kansas in 1903, he took the A.M. degree at the same university the following year. He was a teaching fellow in Sociology and Anthropology in 1904-05, and the following year was principal of the High School of Galena, Kansas.

Coming to Harvard University in 1906 as a graduate student in Anthropology, he remained closely affiliated with the Division of Anthropology and the Peabody Museum from this time until 1917. As Hemenway Fellow in 1906-07 and 1907-08, he carried on his first field investigations for the Museum at Madisonville Cemetery, Ohio, then owned by the Peabody Museum, continuing the excavations started by Dr. Metz, Professor F. W. Putnam, and Dr. J. R. Swanton. He was there for five months in 1907 and six months in 1908 (Peabody Museum Papers, Vol. 8, No. 1, pp. 7-9) followed by several months at the Turner Mounds in Ohio. In the summer of 1909 he excavated at the Volk site in the Delaware Valley.

His interests became centered in the Maya region in 1908-09, when he was appointed Fellow in Central American Research, holding this fellowship for two years.

In 1909-10 he accompanied A. M. Tozzer to the Maya area in British Honduras and Guatemala. This was the first of a series of six yearly expeditions to Central America in every one of which he was a member, and in all but the first the Director. These investigations were carried on under the auspices of the Central American Expedition Fund of the Peabody Museum; the late Mr. Charles P. Bowditch was the organizer and major benefactor in them all.

It was on this first trip that the ruins of Holmul were discovered, together with La Honradez, Azucar, Seibal II, and Chochkitan. Merwin made the triangulations and surveys necessary for the maps of Tikal and Nakum during the same year, together with photographs. (Peabody Museum Memoirs, Vol. 5, Nos. 2 and 3).

In 1910-11, as Director of the Peabody Museum Expedition and accompanied by his brother, Bruce Merwin, he made the intensive excavations at Holmul which are the subject of the present Memoir. In the expedition of 1911-12, he and Clarence L. Hay, Central American Research Fellow, discovered several new and most important ruins north of the Hondo River in British Honduras and southern Quintana Roo. The sites on the Rio Beque are among the most important of those discovered in the last twenty years.

During the next year Merwin remained in Cambridge, working on his dissertation for the Doctorate. This was based on the work of the expedition of the previous year. He received his Ph.D. in June, 1913, with a thesis entitled "The Ruins of the Southern Part of the Peninsula of Yucatan, with Special Reference to their Place in the Maya Culture."

In 1913-14, accompanied by C. W. Bishop, he explored Mugeris and Cancuen Islands, east of Yucatan, and Ucanal, Yaltatu, and Chacha, on the Mopan River just over the British Honduras boundary in the Peten, Guatemala. He also paid a third and short visit to Holmul.

The next year, accompanied by A. W. Carpenter, Merwin explored the region of southern British Honduras and its coastal basin, visiting the ruins of Rio Grande, re-

named Lubaantun by later "discoverers." From this site he brought back three circular carved stones which he calls in his notebook "Ball Game" stones. He has a drawing of a ball-court with the position of the stones carefully noted. This is probably the first definite statement of such a structure in a site, possibly First Empire.

Owing to ill health, he was not able to return to the Maya region, but was Associate in Central American Archaeology of the Peabody Museum for 1915-16 and 1916-17, when he was engaged in writing up his notes.

In 1916, Merwin married Evelyn Albrecht of Massilon, Ohio, and they made their home in Hot Springs, Arkansas. He made several visits to Cambridge for longer or shorter periods when he was able, in spite of increasing ill health, to oversee the completion of most of his drawings and the designs on the Holmul pottery. He was never able to finish to his satisfaction the entire text on the Holmul site. This has been done by Dr. Vaillant.

Merwin and I travelled and lived for five months in the tropical bush. Such an association is perhaps the strongest test of character and forbearance. Merwin was an ideal companion in every way. His willingness and good temper were unflinching, his archaeological work was of a very high order, his methods of record excellent.

The high praise which Dr. Vaillant gives to his co-author in the text of this volume is well-deserved. Merwin has the honor of having provided the first stratigraphical study of a Maya ruin, and goes down in the record as the scientific discoverer of several important Maya sites.

There is little doubt that this succession of six annual expeditions to the Peten and Yucatan bush shortened Merwin's life. His death, in 1928, is still a matter of great regret to all his colleagues in the Maya field, and in particular to his friends and fellow-workers in the Peabody Museum.

A. M. TOZZER

## PREFACE

After the completion of the archaeological survey of the Usumacinta River for the Peabody Museum, begun in 1898, Teoberto Maler turned his attention to a similar reconnaissance in the Peten district in Guatemala, which continued until 1908. This was but a part of a careful plan, proposed by the late Charles P. Bowditch and supported mainly by him, to cover the entire unexplored parts of the Maya area. In 1908 the government of Guatemala kindly renewed its permit of 1901 to the Peabody Museum to allow research in this country.

In 1909-10 Dr. R. E. Merwin, a co-author of the following Memoir, with the writer of this preface set out on the first of six Peabody Museum expeditions to the central part of the Maya area. On a map published by Maler in 1908 (Peabody Museum Memoirs, Vol. 4, No. 2, p. 56), the sites of Holmul and Nakum were noted. Maler had evidently heard of these new ruins, but he had never seen them. Périgny first visited Nakum in 1906 and again in 1908, followed, on his final departure, by this Peabody Museum expedition (Memoirs, Vol. 5, No. 3). Holmul was first visited by me for a few days beginning December 1, 1909. Merwin accompanied me on a second trip here a few weeks later to take photographs and make more observations. This site appeared at once as an important one, but the mapping of Tikal and the new site of Nakum called us away. (See map, Peabody Museum Memoirs, Vol. 5, No. 3, Plate 31).

The curved walls on Building A, Group II, seemed unique and important enough to warrant an intensive study which excavation alone could accomplish. These curved walls turned out later, as shown in the text, to be the eye-balls of masks forming the facing of the mound. The pottery sherds found in the excavation of six chultunes northwest of Group I added to the interest of the site.

It was therefore suggested to Dr. Merwin, who was the Director of the 1910-11 expedition, that he make a careful investigation of Holmul. He soon found the vaults with their rich contents in Building B, Group II, and quite correctly considered it worth while to spend the entire field season there. He returned to this country in 1913-14 for a short visit.

The continued illness of Dr. Merwin prevented the completion of the manuscript. Those parts written by him are signed with his initials; all the remainder is by Dr. Vaillant, and is also signed. The Holmul pottery had previously been the basic material around which Vaillant wrote his Doctor's dissertation, "The Chronological Significance of Maya Ceramics." It is therefore particularly fortunate for the Museum that he was willing to bring out this volume. The thanks of the Museum should also be extended to the officers of the American Museum of Natural History, New York, who have generously granted to Dr. Vaillant the time necessary to complete this work.

A. M. T.





# CONTENTS

	PAGE
RAYMOND E. MERWIN . . . . .	iii
PREFACE . . . . .	v
LIST OF FIGURES IN THE TEXT . . . . .	xi
LIST OF PLATES . . . . .	xiii
INTRODUCTION . . . . .	1
GROUP I . . . . .	7
Building A . . . . .	7
Building B . . . . .	8
Room 1 . . . . .	8
Room 2 . . . . .	8
Room 3 . . . . .	8
Room 4 . . . . .	9
Room 5 . . . . .	9
Room 6 . . . . .	9
Building C . . . . .	10
Building D . . . . .	12
Building E . . . . .	13
Building F . . . . .	13
Chultunes . . . . .	16
Commentary on Group I . . . . .	16
GROUP II . . . . .	17
Building A . . . . .	18
Building B . . . . .	20
Substructure . . . . .	24
Exterior Walls . . . . .	25
Exterior Wall Openings . . . . .	25
Room 1 . . . . .	27
Room 2 . . . . .	28
Articles Found on Floor of Room 2 . . . . .	28
Pots Found in West End of Room 2 . . . . .	29
Burials in Rooms 1 and 2 . . . . .	29
Skeleton 1 . . . . .	29
Skeleton 2 . . . . .	30
Skeleton 5 . . . . .	30
Skeleton 6 . . . . .	30
Skeletons 9 and 10 . . . . .	30
Skeletons 13 and 14 . . . . .	30
Articles Found with these Burials . . . . .	30
With Skeleton 1 . . . . .	30
With Skeleton 2 . . . . .	31
With Skeleton 3 . . . . .	31
With Skeleton 5 . . . . .	31
With Skeleton 6 . . . . .	33
With Skeleton 9 . . . . .	34
With Skeleton 10 . . . . .	34
With Skeletons 13 and 14 . . . . .	34

	PAGE
Room 3 . . . . .	35
Room 4 . . . . .	36
Skeleton 15 . . . . .	36
Room 7 . . . . .	36
Skeleton 16 . . . . .	37
Articles Found with Skeleton 16 . . . . .	37
Room 8 . . . . .	37
Burial Vault . . . . .	38
Articles Found . . . . .	38
In Room 8 . . . . .	38
In Burial Vault . . . . .	38
Room 9 . . . . .	38
Burial Vault . . . . .	39
Articles Found in Room 9 . . . . .	39
Room 10 . . . . .	40
Skeleton 22 . . . . .	40
Articles Found with Skeleton 22 . . . . .	40
Commentary on Building B . . . . .	40
Building C . . . . .	R. E. M. (and G. C. V.) 41
Building D . . . . .	42
Building E . . . . .	R. E. M. (and G. C. V.) 43
Building F . . . . .	R. E. M. (and G. C. V.) 44
Building G . . . . .	46
Commentary on Group II . . . . .	46
GROUP III AND RUIN X . . . . .	48
Building A . . . . .	48
Building B . . . . .	49
Ruin X . . . . .	R. E. M. (and G. C. V.) 50
Skeleton 1 . . . . .	51
Articles Found with Skeleton 1 . . . . .	52
Skeleton 2 . . . . .	52
Articles Found with Skeleton 2 . . . . .	52
Skeleton 3 . . . . .	52
Articles Found with Skeleton 3 . . . . .	52
Stela and Altar . . . . .	52
Commentary on Group III and Ruin X . . . . .	53
ANALYSIS OF ARCHITECTURE, CERAMICS, AND MINOR OBJECTS . . . . .	54
Architecture . . . . .	54
Period I . . . . .	54
Period II . . . . .	55
Period III . . . . .	56
Period IV . . . . .	58
Period V . . . . .	58
Pottery Vessels . . . . .	60
Holmul I, the First Burial Period . . . . .	61
Holmul II, the Second Burial Period . . . . .	65
Holmul III, the Third Burial Period . . . . .	66
Holmul IV, the Fourth Burial Period . . . . .	71
Holmul V, the Fifth Burial Period . . . . .	72
Digest of Types of Pottery . . . . .	82
Holmul I . . . . .	82
Holmul II . . . . .	82
Holmul III . . . . .	82
Holmul IV . . . . .	83
Holmul V . . . . .	83

# CONTENTS

ix

PAGE

Pottery Tools . . . . .	84
Figurines . . . . .	84
Stone Tools . . . . .	85
Shell . . . . .	87
Bone, Horn, and Teeth . . . . .	89
Wall Carvings . . . . .	91
Burials . . . . .	91
CONCLUSIONS . . . . .	93
Holmul I . . . . .	93
Holmul II . . . . .	93
Holmul III . . . . .	94
Holmul IV . . . . .	95
Holmul V . . . . .	95
BIBLIOGRAPHY . . . . .	97
REFERENCE INDEX . . . . .	105
MUSEUM CATALOGUE NUMBERS OF SPECIMENS ILLUSTRATED . . . . .	107





## LIST OF FIGURES IN THE TEXT

	PAGE
1. Group I and Ruin X: plan . . . . .	6
2. Building A, Group I: plan . . . . .	7
3. Sections of rooms, Group I: <i>a</i> , Building A, Room 2; <i>b</i> , Building B, Room 1; <i>c</i> , Building B, Rooms 3 and 6; <i>d</i> , Building B, Rooms 4 and 5 . . . . .	8
4. Building B, Group I: plan . . . . .	9
5. Building C, Group I: plan . . . . .	11
6. Building E, Group I: section . . . . .	13
7. Building F, Group I: <i>a</i> , section; <i>b</i> , plan . . . . .	14
8. Group II: plan . . . . .	17
9. Building A, Group II: section . . . . .	18
10. Building A, Group II: plan and section of rooms . . . . .	19
11. Building A, Group II: mask, east side . . . . .	21
12. Building B, Group II: plan . . . . .	22
13. Building B, Group II: section . . . . .	23
14. Building B, Group II: façade, substructure . . . . .	24
15. Building B, Group II: east elevation . . . . .	25
16. Building B, Group II: rear façade . . . . .	26
17. Building C, Group II: plan . . . . .	41
18. Building D, Group II: plan . . . . .	42
19. Building E, Group II: plan . . . . .	43
20. Building F, Group II: plan . . . . .	44
21. Building F, Group II: section . . . . .	45
22. Group III, Buildings A and B: plan . . . . .	48
23. Ruin X: plan . . . . .	49
24. Ruin X: section . . . . .	50
25. Comparative vault sections of low, high, and wide vault rooms . . . . .	57
26. Diagram showing distribution of Holmul pottery types: <i>a</i> , Holmul I; <i>b</i> , Holmul II-IV; <i>c</i> , Hol- mul V, painted and carved figures; <i>d</i> , Holmul V, tripod pottery . . . . .	83
27. Shells . . . . .	86
28. Shell ornaments . . . . .	87
29. Carved shell discs . . . . .	88
30. Hollow bone objects, barb of sting ray, and carved jaguar tooth . . . . .	89
31. Graffiti incised on plaster of Room I, Building A, Group II . . . . .	90



## LIST OF PLATES

*Frontispiece.* Polychrome lacquer bowl and cover, overlaid with secondary plaster decoration.

1. *a*, Entrance to Room 1, Building A, Group I; *b*, Entrance to Room 1, Building A, Group I.
2. *a*, West side, Building F, Group I; *b*, Skeleton 1, Building F, Group I.
3. Doorway of Room 1, looking out, Building A, Group II.
4. *a*, Mask, east side substructure, Building A, Group II; *b*, Double row of masks, south side substructure, Building A, Group II.
5. *a*, Section of mask, east side substructure, showing eye and fang, Building A, Group II; *b*, Section of mask, east side substructure, showing eye, Building A, Group II.
6. *a*, South façade and door blocks, Building B, Group II; *b*, South façade with blocks removed, Building B, Group II.
7. *a*, South façade showing substructure, vault to Room 8, Building B, Group II; *b*, Detail of fill in Room 1, Building B, Group II.
8. *a*, Masonry against east side, Building B, Group II; *b*, Corner east side nearly cleared, Building B, Group II.
9. *a*, Northeast corner, Room 4, Building B, Group II; *b*, Pots with Skeleton 1, Rooms 1 and 2, Building B, Group II.
10. *a*, East end, Room 2, showing Skeletons 9 and 10, Building B, Group II; *b*, Pots with Skeleton 5, east end, Room 2, Building B, Group II.
11. *a*, Skeletons 13 and 14, west end, Room 2, Building B, Group II; *b*, West end, Room 2, showing Pots A, B, and C, Building B, Group II.
12. *a*, West end cleared, Room 2, Building B, Group II; *b*, Skeletons 5, 13, and 14, Room 2, Building B, Group II.
13. *a*, Door block to Room 3, Building B, Group II; *b*, Room 4, showing vault inserted within original chamber, Building B, Group II.
14. *a*, Room 10, Building B, Group II; *b*, Room 8, Building B, Group II.
15. *a*, Door block, Building E, Group II; *b*, Skeleton 1, Room 2, Building E, Group II.
16. *a*, Door block, Building F, Group II; *b*, Skeleton 1, Building F, Group II.
17. Skeletons 1 and 2, Ruin X.
18. Pottery of Holmul I.
19. Pottery of Holmul I and II.
20. Pottery of Holmul I, II, and III.
21. Black lacquer bowl with effigy cover, Holmul III.
22. Black lacquer bowl with effigy cover, Holmul III.
23. Black lacquer bowl with effigy cover, Holmul III.
24. Black lacquer bowl and cover with ornamental knob, Holmul III.
25. Polychrome lacquer bowl with effigy cover, Holmul III.
26. Pottery of Holmul III.
27. Pottery of Holmul III.



28. Pottery of Holmul III and IV.
29. Pottery of Holmul III and V.
30. Two polychrome vases, Holmul V.
31. Pottery of Holmul V.
32. Miscellaneous objects.
33. Jade and other stone beads, ear plugs, and fragments.
34. Shell and bone objects.
35. Shell, bone, and stone objects.
36. Shell and bone objects.

## THE RUINS OF HOLMUL, GUATEMALA

### INTRODUCTION

Holmul lies in the Peten district of Guatemala, a few miles west of its boundary with British Honduras, and two and three-quarters hours' ride southwest of Yalloch, a former chicle camp and a frontier post of the Guatemalan government. Yalloch can be reached in a day's ride over a good trail from El Cayo, British Honduras, the head of navigation on the Belize River.

The site is composed of the two large plazas, Groups I and II, Building X, a structure subsidiary to Group I, and the buildings designated as Group III. Six buildings are disposed more or less symmetrically about the plaza of Group I. To the west of them is the isolated Building X, but the position of Group III is problematical. Group II is located about four hundred yards northwest of Group I, and is made up of seven buildings, so placed around a plaza as to give the impression of an ordered plan.<sup>1</sup>

The sequence in which the various buildings were excavated is of no particular significance. Therefore, we shall take up in order the buildings of the two main groups, I and II, and later describe the subsidiary structures, Building X and Group III.

Dr. R. E. Merwin's excavations at Holmul during the seasons of 1909-10, 1910-11, and 1913-14 produced not only the basis for all field archaeology in the Maya area but also the finest collection of Maya ceramics ever assembled from a single site. It is a great tragedy that he could not have lived to complete his work and to reap the honors due him for so significant a contribution. Had Dr. Merwin's discoveries been published at the time at which they were made, they would have been unique as developing the only stratigraphy hitherto encountered in the course of Maya archaeology. The splendid research at Uaxactun, however, carried out in recent years by Messrs. Ricketson, Amsden, and Smith of the Carnegie Institution, by no means diminishes the luster of Dr. Merwin's accomplishment since it still remains the first ceramic stratigraphy established in the Maya field.<sup>2</sup>

The value of the sequence of ceramic styles has been amply shown in the archaeology of the Southwestern United States. Following the principles laid down by Mr. N. C. Nelson and Dr. A. V. Kidder,<sup>3</sup> a number of gifted workers have arranged, on the basis of pottery types, a history for the Basket-makers and the Pueblos that is as sensitive to time as it is to region. In other fields the utility of the ceramic approach has been proved over and over again. Periods in time can be defined by the superposition of the changing styles of rubbish heaps; foreign potsherds can be utilized to give hints of commerce and to cross-date stratigraphical sequences in other areas; and buildings without chronologically significant details of architecture can be dated by the sherds associated with such structures. Yet chronology by means of ceramics is sometimes considered a last resort, to be employed only when other time indications, like written histories, are lacking. To

<sup>1</sup> No complete map has been made of the relative positions of the groups at Holmul, nor has it been possible to compose such a map from the data contained in Merwin's field notes.

<sup>2</sup> Carnegie Institution Annual Report, 1926-27, 1927-28, 1928-29. Vaillant, 1927.

<sup>3</sup> Nelson, 1916, pp. 159-180. Kidder, 1924.

a certain degree this condition applied in the Maya field, where a rich architecture and an exact calendar system threw into obscurity the humbler means of creating historical formulae by ceramic stratification. The unfavorable natural conditions, also, restricted research to temples and monuments, since the almost impenetrable forests concealed surface indications of the rubbish beds on which stratification depends.

An approach to Maya history by architecture and the calendar system is unsatisfactory in many ways. The exactly dated stelae, altars, and lintels represent seven hundred years of time consecutively recorded on imperishable blocks of stone. Nevertheless, the presence or absence of a calendar system before the Maya adopted this method of commemorating events does not affect the excavator, since he must rely on the same stylistic and stratigraphical indications that he would employ in reconstructing the history of a people without a time count. After about seven hundred years of carving dates on stone the Maya ceased this practice, and again the archaeologist is confronted with the same problem — the erection of a chronology on stylistic grounds. His problem is aided, however, by the books of Chilam Balam, manuscript histories of the Maya, wherein events were set down in a dated record, but these dates were, unfortunately, expressed only in terms of the days and years within a fifty-two year cycle and not, as on the stelae, in terms of the cycles themselves; consequently, the correlation of the "short count" dates of the manuscript with the "long count" dates of the monuments is fraught with an uncertainty that affects also the expression of the Maya calendar in terms of Christian chronology.<sup>1</sup> Although the archaeology of the Maya should on the other hand be extremely simplified by the presence of these hundreds of years of time carefully kept, an occurrence unique in New World history, great difficulties obtrude. It is not always possible to correlate the stelae with the temples, for the monuments seem in several instances to have been reset.<sup>2</sup> Some sites like Holmul, which on architectural grounds may be contemporaneous with the "Old Empire" cities possessing monuments, have no dated stelae. Presumably the time markers were of wood, or of stone covered with a plaster which has since disappeared. Consequently, it is difficult to harmonize material like pottery with the dated history since the relation of the monuments to the buildings and their debris is rarely certain. Furthermore, only Copan of all the Maya cities has produced pottery as foundation deposits for stelae.<sup>3</sup> For the purpose of comparing the Maya chronology with that of other areas, these time markers are likewise of little avail, for only the Zapotecs and the Aztecs recorded time in stone, and they used a short count system. Moreover, even in a single Maya site, the stelae do not express necessarily the entire length of occupation, owing to the three possibilities mentioned above: that the site might have been occupied previous to the time of stone time markers; that its inhabitants might have utilized perishable materials for their records; or that the site might have been occupied after the practice ceased. Finally, in the cities of northern Yucatan and on the highlands of Guatemala there are almost no long count dates, and while it is of course possible that this absence may be accounted for on chronological grounds, yet there arises the possibility that the people there did not practice the custom of erecting such monuments.

Consequently, a history of the Maya in terms of the calendar system requires very definite control media, of which the most obvious is architecture. In the Maya area mounds and temples offer the diagnostics for human occupation, since the dense bush obscures the potsherds indicative, in more open regions, of human occupancy. Moreover,

<sup>1</sup> Morley, 1920. Spinden, 1924. Thompson, J. E., 1927, b. Teeple, 1930. Martinez, 1928.

<sup>2</sup> Smith, 1929, pp. 323-324.

<sup>3</sup> Gordon, 1896, pp. 33-39. Mr. O. G. Ricketson informs me that caches were found under stelae at Uaxactun, but the pottery vessels are too simple to reflect time.



Maya architecture is ornate and conventionalized, showing thereby the stylistic variations which are so necessary to establish the sequence of periods. The poor communications which make it difficult for an expedition to stay long in the field, together with the great size of individual buildings, let alone sites, make prolonged excavations impracticable in most cases, so that the architectural aspect of Maya history must always be a dominant approach. Yet many of the buildings are too ruined to be studied except by excavation. Furthermore, a universal Middle American architectonic trait is to cover one building by another whenever styles or peoples change, so that the dissection of mounds will always have to be the basis for a chronology. Very few expeditions, however, have laid bare Maya buildings, particularly those in the Peten district, and Dr. Merwin's contribution in opening up Ruin B of Group II at Holmul was the first real excavation in that area. Previously, Copan had been studied by the Peabody Museum under Saville, Owens, and Gordon, but not in the detail nor with the technical skill used by Merwin at Holmul. In recent times our knowledge of the anatomy of Maya architecture has been enormously enriched by the work of the Carnegie Institution, under Ricketson at Uaxactun and under Morris at the Temple of the Warriors at Chichen Itzá.

The fundamental studies on Maya architecture made by Holmes and Spinden were founded on external indications, and what data we possess on the chronological sequence of the various architectonic styles are based on the work of these students.<sup>1</sup> Their work, however, is general rather than specific and for that reason is of more value to the student of the Maya as a whole than to the field man working on an isolated problem.

In spite of the importance of architecture as a means toward establishing Maya chronology, it has a number of disadvantages when comparative studies are undertaken between the Maya and other Middle American people. Architecture with an ornate and conventionalized decoration is rare in the region and is confined to centers of the highest civilization. Particularly is this condition true of ornament in an imperishable material like stone. The profiles of substructures are not susceptible enough to stylistic variation to serve as sensitive media for the expression of time and cultural influence. Therefore, some other formula must be sought to express history in more nearly universal terms, and pottery best fulfills this requirement.

After a certain stage in human evolution, pottery is a universal possession; in shape and decoration it is capable of infinite variation which reflects not only time but also tribe; individual pieces can be easily traded; and although friable, once broken it is relatively imperishable, so that its fragments can accumulate over great periods of time without disintegration, and thus create the rubbish heaps essential to stratigraphical research. But important as is the ceramic approach to Middle American archaeology, grave difficulties attend its application in field studies of Maya history. The dense bush which thwarts the archaeologist in every phase of his work conceals dwellings and refuse heaps. The houses of the ancient Maya were probably flimsy, perishable structures like those of the modern population and would leave no trace. Humic acid rots sherds near the surface, and the periodic burning of the bush for corn fields is as great a cause of disintegration as the wetting and drying of the ground during the alternation of the seasons. The temples usually were surrounded by paved terraces which would have been kept clean, and the ceremonial character of the buildings around them would not tend to produce the quantities of refuse emanating from village dwellings. Ordinary rubbish heaps susceptible to stratigraphic study have been found only at Copan, Chichen Itzá, and Uaxactun.<sup>2</sup>

<sup>1</sup> Holmes, 1895 and 1897; Spinden, 1913.

<sup>2</sup> Copan, Mound 36: Owens in Gordon, 1896, pp. 26-29. Chichen Itzá: Information supplied by H. Roberts. Uaxactun: Vaillant, 1927-28, pp. 313-317.



and that of Uaxactun alone has yielded striking results. But Dr. Merwin found at Holmul instead of a rubbish bed a series of graves richly equipped with pottery showing strong contrasts from period to period. A stratification of any kind is rare and of the greatest importance in Maya archaeology, but a superposition of remains of such intrinsic worth is unique.

When one considers the number of Maya sites that have been studied and the magnificence of their architecture, it is with great surprise that he observes how few specimens of Maya handiwork exist in museums. The factors that hinder excavation prevent naturally the accumulation of collections.

Considerable bodies of material have been collected from Copan, Honduras, Salvador, Chichen Itzá, and Labná in Yucatan, Yalloch and Uaxactun in the Peten, Chamá and the hinterland in southwestern Guatemala, the Southern Cayo region, Lubaantun, and Pusilhá in British Honduras together with many sites in the north of that colony.<sup>1</sup>

Aside from these collections most of the finds are without a sound scientific record. Thus, excluding the historical value of Merwin's undertaking in its architectural and ceramic aspects, the mere fact that he amassed a rich collection makes his contribution noteworthy.

Let us summarize the significance of Merwin's work at Holmul: He made one of the first scientific studies of a Maya site and built a foundation for field archaeology in the Peten region by the architectural and ceramic stratification which he discovered. He showed the necessity for a material culture sequence in the Maya area since no dated monuments survived at Holmul. He collected one of the most historically and artistically significant bodies of material ever found in the Maya area.

It is a pleasure to give honor where honor is due. It is a privilege to assist in presenting this work for publication. Dr. Merwin ruined his health on his last field trip, and in spite of growing steadily weaker he struggled to complete his report. Finally it became clear that he would never be able to finish, and the writer, who had done some work on the Holmul pottery for his Doctor's dissertation, was invited to collaborate. Within a few months Dr. Merwin died, and the task of bringing out this report devolved upon Professor Tozzer and the writer.

The manuscript on Holmul was only partially completed in the form of a rough draft, for Dr. Merwin was not spared to coördinate the text and to formulate his conclusions. Having had only one conference with him, the writer could not ascertain what his final ideas were on the results of the excavations. But Merwin left in the course of his work very full notes, and had completed his plans and selected his drawings. Professor Tozzer, moreover, had worked with him and was familiar with the work in its completed and projected forms. Both Professor Tozzer and the writer felt that publication of this report could be delayed no longer, but that its value would be greatly enhanced if the existing manuscript were supplemented for production in a complete form.

It is against all ethics to tamper with another man's text. It is worse to put one's own ideas into another man's mouth. Consequently, the additions to the manuscript have

<sup>1</sup> Copan: Gordon, 1896.

Salvador: Spinden, 1915; Lothrop, 1927, *a*.

Chichen Itzá: Collections of the Peabody Museum of Harvard University.

Labná: Thompson, E. H., 1897, *b*.

Yalloch: Gann, 1918, Pls. 23-28; Tozzer, 1913, p. 192.

Uaxactun: Ricketson, 1927, 1928, *a*, 1928, *b*.

Chamá: Dieseldorff, 1926; Mason, J. A., 1927, *b*.

Highlands of Guatemala: Burkitt, 1924, 1930, *a* and *b*; Gamio, 1926-27.

Southern Cayo Region: Thompson, J. E., 1931, *b*; Mason, G., 1928.

Lubaantun: Joyce, 1926.

Pusilhá: Joyce, 1929; Joyce with Gann, Gruening, and Long, 1928.

Northern British Honduras: Gann, 1918.

been initialled by the writer, and to avoid confusion Dr. Merwin's initials have been placed after each section of the original text. If the bulk of the additions appears disproportionate to the original, it should be constantly borne in mind that Merwin left very full notes on his work and that the commentaries are so obvious that he would in all probability have reached the same conclusions. What credit is due belongs to Merwin; for the errors and misconceptions that may appear in these papers, the collaborator assumes full responsibility.

G. C. V.

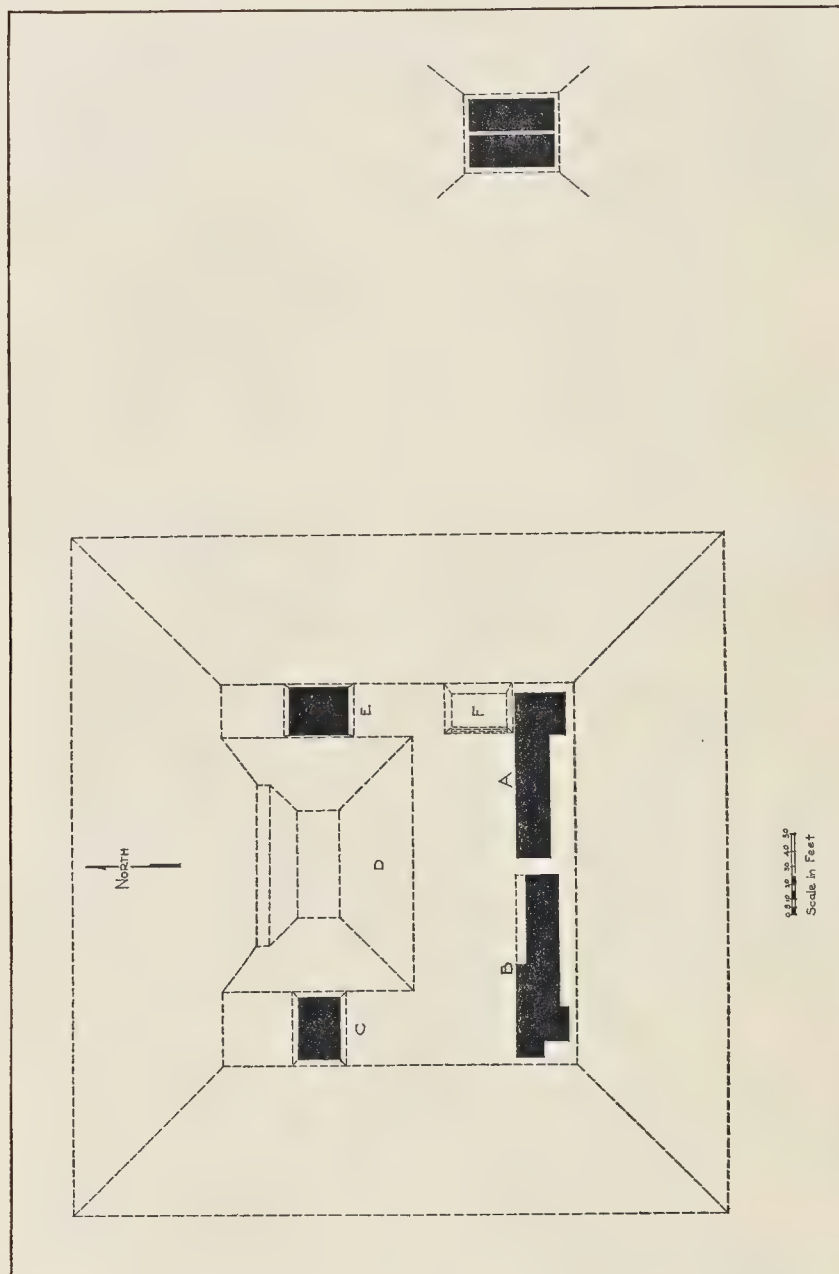


Fig. 1. Group I and Ruin X: plan

## GROUP I

The structures of this group (Fig. 1) were located upon a high (100-foot) stone-faced truncated pyramid, the top of which may have been reached by a single stairway, for the evidence of such an approach seemed to be on its west side only.

The structures arranged along the edges of the top of this artificial mound formed an acropolis, the interior court of which was paved and carefully plastered with stucco.

The south side of this acropolis was formed by the two very similar buildings designated as A and B; its north side by Buildings C and E, and the large mound D, which was between them. The peculiar burial mound F formed the east side. On the west edge was a very low, narrow mound, whose significance cannot be determined.

G. C. V.

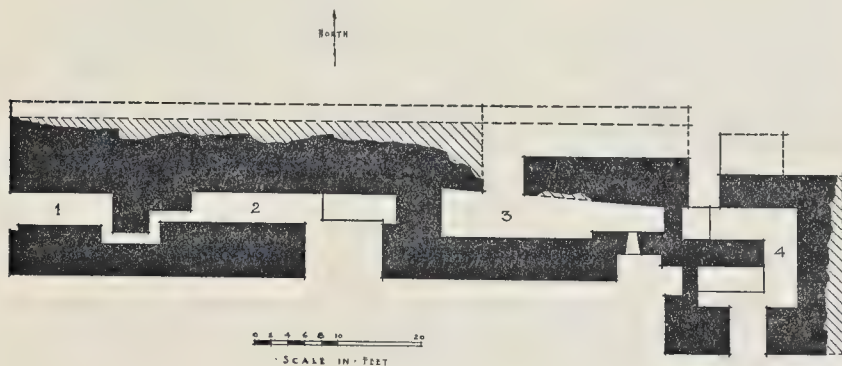


Fig. 2. Building A, Group I: plan

### BUILDING A

Although this building (Fig. 2) was only partially excavated because of our limited time, and an attempt at a careful, detailed description would not be warranted, yet a number of striking features may be noted.

One of the most interesting things noticed even before a few of the rooms were entirely excavated was their great height combined with their narrow width, the height being the same in all the rooms, only the width varying (Fig. 3, *a*). The total height was twenty feet; the average height of the arch-spring from the floor twelve feet six inches; and in the case of Rooms 1 and 2 the width was but three feet four inches. These facts are shown in the photographs (Plate 1).

In connection with this peculiarity of room dimensions may be found a significance in the massiveness of the walls.

Between Rooms 1 and 2 there was a tunnel-like connection. It had the usual arched ceiling — four feet five inches high and one foot five inches wide.

In one of the corners of Room 2 was a low bench. However, the most striking feature of this room was its very wide entrance.



Room 3 was very unusual in shape. While the height remained constant, the south end of the room was narrower than the north end; this effect was produced by the tendency of the side walls to converge, the east one in a straight line, the other broken by a narrow offset. A wedge-shaped effect was produced by this convergence.

Through the south wall was a wall-opening (window or ventilator). It was six feet nine inches from the floor and while of constant height (one foot eight inches), its width in the room was a trifle less than at its opening at the exterior wall of the building.

The other portion of this building which can definitely be shown may be designated as Room 4, consisting of three parts, two parallel rooms joined by a corridor-like room. In the south section of this room was a low bench; but that part of the northern section shown in the drawing as a bench was of unusual height, being equal to that of the arch-

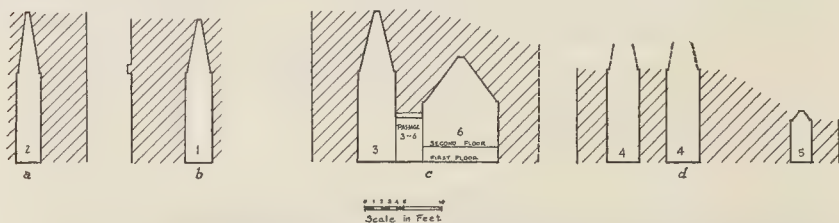


FIG. 3. Sections of rooms, Group I: a, Building A, Room 2; b, Building B, Room 1; c, Building B, Rooms 3 and 6; d, Building B, Rooms 4 and 5

spring (twelve feet six inches). Its length was the width of the room and its width at the floor was three feet eleven inches, two inches greater than at its top.

The remainder of Building A was entirely destroyed and is shown only by dotted lines. It is very probable, however, that it had a similar construction and room arrangement to that shown in the west and north sides of Building B.

In clearing the débris from this building, little was found except a few sherds of very coarse pottery.

R. E. M.

#### BUILDING B

Building B (Fig. 4), an elongated structure of six rooms, was aligned with Building A along the south side of the plaza. A glance at its ground plan suggests that two periods of construction are here represented. Rooms 1-4 have the same plan as Building A, while Rooms 5 and 6 and the undefined construction just north of Rooms 1 and 2 represent perhaps an accretion.

**Room 1.** This, like its equivalent in Building A, was half the length of the succeeding rooms. It had virtually the same proportions. A passage led to Room 2 through the west wall, and in the absence of specific information it may be assumed to be the same as its equivalent in Building A.

**Room 2.** This had height and width proportions identical to those of Room 1. It was, however, about twice as long. A wide door gave egress to the south and, facing it, a low platform abutted on the north wall, exactly paralleling conditions in Building A.

**Room 3.** This reproduced all the dominant factors found in the equivalent chamber of Building A, including the irregular wedge-shaped plan, the northern door, and the window high in the wall which gave on an alcoved recess. This room retained the same

wall height as Rooms 1 and 2, but the arch was two feet higher. It did not have the narrow ledge that was found in the northwest angle of the same room in Building A. The heights of these two rooms are not comparable, for in Building A the roof was missing.

**Room 4.** This was cut by a partition wall from which presumably two arches were sprung north and south (Fig. 3, *d*). A wall height of thirteen feet differed slightly from the twelve feet two inches of Rooms 1-3. However, as the vault had fallen, we cannot compare their total heights. Room 4 was similar to the terminal room at the east corner of Building A except for the bench in the antechamber.

Thus far the two buildings, A and B, have paralleled each other almost exactly, but Building B had a northern range of construction not possessed by Building A. Just north of Room 4 and the western third of Room 3 there was a thick block of solid masonry over

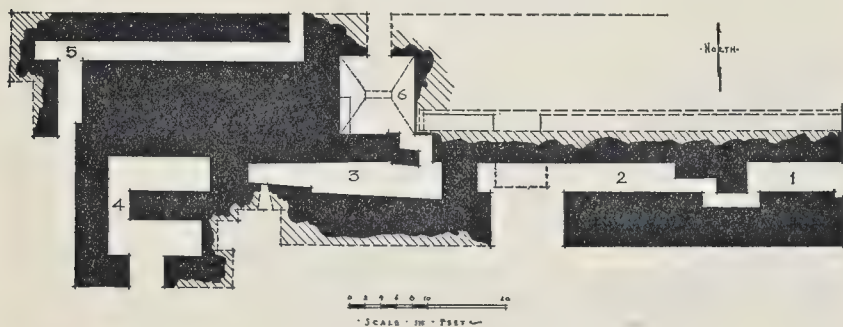


Fig. 4. Building B, Group I: plan

twelve feet wide and thirty-three feet long that suggested either the base for a roof comb or for a second storey, or else the filling in of a room to make such a foundation. No notes are available to elucidate this point.

**Room 5.** Around the northwest corner of this mass a long, narrow passage had been constructed consisting of a long element running east and west with a door to the north, and of a shorter arm extending southward at right angles. This room had an exterior door at its southern end. The floor of the longer room was two feet higher than that of the shorter one. The low height of the passage and its width of two feet six inches offer a curious contrast to the proportions of the high, narrow rooms (Fig. 3, *d*). The purpose of this construction is problematical, as the need for a passage outside a building is obscure. Room 5 had, however, more practical dimensions than the vaulted passage between Rooms 1 and 2.

**Room 6.** This opened off Room 3, at the east of the heavy masonry mass bordered by the passage we have just described. It possessed the remarkable feature of a corbel vault sprung from all four sides of the room. The total height of the room, given in Merwin's Notebook 8, was twelve feet seven inches, of which six feet ten inches composed the vaulting and five feet nine inches the wall. In Notebook 4 of the following year, the height to the arch-spring was given as seven feet eight inches and the total height as fourteen feet. This discrepancy is explained by the discovery of a second floor two feet below the first and by the difficulty in measuring a fallen vault (Fig. 3, *c*).

Such proportions are very different from those of the rooms in the original structure. A wide door opened to the north, and entrance to Room 3 was gained by an angular pas-

sageway six feet ten inches high roofed by a low corbelled arch of ten and one-half inches. The wall and vault proportions of this door are very close to those of the exterior passage, Room 5. A bench occupied the southwest corner of this room. The two floors were peculiar in that the lower was even with the floor of the passage to Room 3, but the upper, on which the bench rested, had been laid two feet higher on a stone foundation.

East of Room 6 and north of Rooms 1 and 2 was a mass of fallen masonry that Merwin did not have time to excavate. He suggests in his description of Building A that constructions similar to this fallen mass, together with Rooms 5 and 6, formed a northern range of rooms in that building. Yet the proportions of the plans of the two structures do not warrant this assumption, for Building A is shown as much narrower than Building B, and the thick masonry at the north of it may have supported a roof comb.

The passage between Rooms 3 and 6 offers some indication that Building B is a single period construction. On the other hand, the offset which narrows the approach into Room 3 is not well aligned with the walls of the room and might, therefore, be an addition, since Room 3 in Building A has a simple door without offsets leading to the north.

Building B must have been badly preserved externally, as there are no data on the ornament of the exterior. The photographs show the walls to be composed of rubble, faced with irregular blocks of cut stone which were then plastered. In his notes for Building A, Merwin recorded holes in the veneer of the inside walls, just below the vault. Although these were noted only for Room 6, we may assume that they existed in all the rooms of Building B, as they are common in most Maya buildings, and presumably were utilized to set the scaffolding for vault construction.<sup>1</sup>

Very little was found in the rooms. In Rooms 1-3 about six inches of black-brown dirt covered the floors, and a few potsherds were scattered through it. Room 3 showed signs of a hearth in the northwest corner beyond the bench, for the walls were discolored, and fragments of charcoal were noted. Little dirt lay on the floor of the northern arm of Room 5, but in the shorter western passage sherds and charcoal were mixed in the soil on the floor, and several obsidian knives and a human tooth also were found. These remains might have been left by wandering groups of Lacandone Indians in recent times, although the obsidian flakes indicate perhaps a pre-conquest occupation. Scattered in the tunnel between Room 6 and Room 3 were found several crudely chipped flint implements, mostly chisels, picks, and one flint spear head, which are undoubtedly of pre-Columbian date. Room 6 showed signs of reoccupation, for above the brown dirt of the wood mould on the floor there were layers of wood ashes. In this case post-Columbian occupation by Lacandones or *chicleros* seems probable.<sup>2</sup>

G. C. V.

#### BUILDING C

This was an oblong building of two ranges of rooms lying along the western edge of the plaza with its long axis running east and west at right angles to it. It flanked Building D on the west as did Building E on the east. A mass of masonry, possibly the head of a staircase down the hill, separated Building C from Building B. The structure was in a very ruined condition, with no roofs in place and only the southern range of rooms at all well-preserved. Merwin made a good plan, but his data on the direction of the vaulting are vague. Nothing except a few potsherds was found in the rooms.

<sup>1</sup> Morris, 1931, pp. 207-208, denies the use of such a scaffold, but balanced roof stones with long tails were used at Chichen.

<sup>2</sup> Tozzer, 1907, pp. 81-87 and accompanying footnotes.



Building C (Fig. 5), which rested on a platform five or six feet high, was planned in two units, a western suite of two rooms and an eastern one of five or more. The western group was composed of Room 1 which opened north on the plaza and Room 2 which opened west and connected with Room 1 by a door in the north wall. These rooms were relatively spacious, with an average distance of about eight feet from the floors to the base of the arch. The vault of Room 1 must have been sprung from north to south and that of Room 2 presumably was the same since its shortest dimension was in that direction. The benches found against the east walls of both rooms suggest that Building C was a domiciliary structure, since a platform three feet wide, two high, and six long would make an adequate resting place.

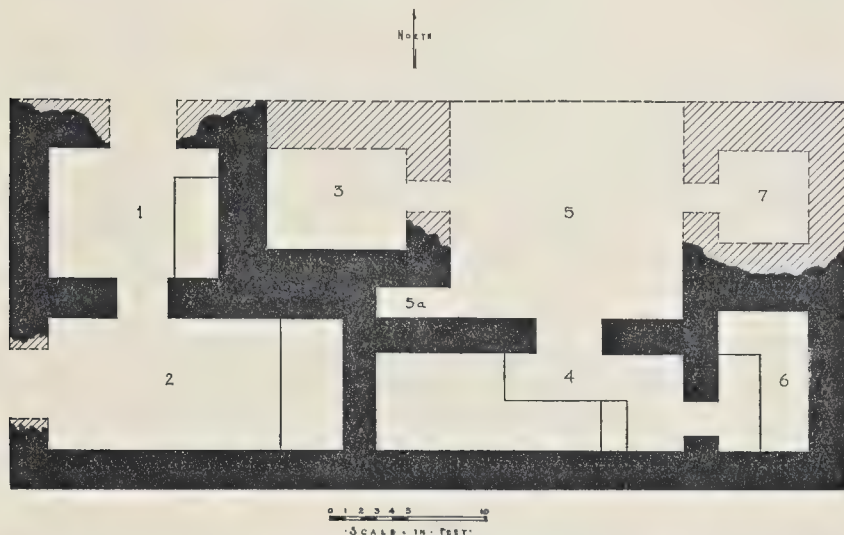


FIG. 5. Building C, Group I: plan

Between Rooms 1 and 2 and the eastern suite there were no internal connections. Rooms 4 and 6 appeared to be domiciliary since each was equipped with a bench filling in the greater part of the floor. Room 6 was a diminutive chamber some nine feet long by six feet wide. It was vaulted from east to west, along its shorter axis. A low door with crude vaulting like that of the passages in Buildings A and B led into Room 4. This room was vaulted north and south over a narrow width of six feet two inches, but it was a little over nineteen feet long. A wide door in the middle of the wall opened to the north. The bench, much larger than those of the other rooms, covered the west half of the floor and extended east along the southern wall, leaving a passageway from the outside door to Room 6. Two slabs of limestone with perforations six inches square had been set into the east wall about one and one-half feet from the northern jamb of the door. The upper slab was set horizontally five and one-half feet from the floor and the lower was placed vertically three feet below it. Possibly hinges for a door were socketed thus, or perhaps hooks to hold back a drapery had been inserted into the holes. Between this door and the east end of the bench a small pocket of charcoal and a few sherds were found.



The ruined state of Building C makes it impossible to describe in detail the northern range of this eastern suite of rooms. There seems to have been a room, No. 7, just north of Room 6; but north of Room 4, although there was space for two rooms with their long axes east and west, there is no evidence to warrant plotting in more than the Room 5 indicated on Figure 5.

North of the partition between Rooms 2 and 4, it was possible to trace part of Room 3, a small chamber, which opened into the space designated as Room 5. The floor of this room was apparently higher than those of the other chambers, because the top of the wall, according to Merwin's field notes, was on a level with the bases of the vaults south of it. Yet the wall height is given as seven feet four inches while that of Room 5a just south of it measured eight feet eleven inches.

Room 5a was a narrow passage wedged between Rooms 3 and 4, which merits its name only through the exigencies of nomenclature. Its two feet of width rendered it too narrow to use as a chamber, and the roof revealed slabs set upon the projecting stones of the top course of the wall proper, instead of the customary corbel arch.

When one considers in connection with this room the unusual thickness for Building C of the west and south walls of Room 3, the possibility suggests itself that Room 3 and the rooms east of it in the northern range were additions, but that owing to some miscalculation of the builders, the alignment of rooms was incorrect and a space was left which was then roofed over and utilized as Room 5a. On the other hand, if this assumption is correct, the original plan of the northern face of the building must have been very irregular, for the north wall of Room 4 was set back from the corresponding walls of Rooms 2 and 6.

We have, nevertheless, in Building C, a structure differing radically from Buildings A and B. The plan of this edifice is more compact and logical to European eyes than that of the others: the walls were lower and narrower; the rooms broader and shorter; and lastly Building C, because of the benches and wide rooms, seemed domiciliary instead of ceremonial in character. The complications presented by the ground plan may have arisen from faulty calculation by the architects rather than rebuilding, but Building B, on the other hand, did seem to show evidence of an addition.

G. C. V.

#### BUILDING D

This was a high massive structure which was aligned with the north face of the acropolis and dominated the entire plaza of Group I. Buildings C and E nestled between its western and eastern sides and the outer edges of the plaza (Fig. 1).

No excavations were made at Building D and it was too ruined for surface observations. It seems to have been a building on a substructure, which in Merwin's opinion rested on natural elevation. The total height from the pavement of the plaza was eighty-one feet eight inches. The ruins of the building proper rose twelve to fourteen feet above the floor of the platform, which in turn extended some thirty feet above the natural elevation. The temple occupied an area twenty-six feet wide and sixty-two feet long, covering the length of the platform, but leaving a space twenty feet wide along its southern face.

Three depressions north of this pyramid were traces of constructions that may have been stairways. They occurred at regular intervals about twelve feet apart. One of them showed a tread of two feet six inches. Similar constructions were found between Buildings E and F on the east side of the plaza and between C and D on the west.

G. C. V.

## BUILDING E

This was a small two-room structure situated between the eastern edge of Pyramid D and the east side of the plaza (Fig. 6). It rested on a five-foot terrace of rubble with a stone veneer, and a stair on the southern side led from the plaza to the front door of the building. The proportions of these chambers were like those of Rooms 2 and 4 in Building C. The walls were eight feet one inch high and the floors measured eight feet three inches by nineteen feet ten inches. The middle wall was thickened to support the weight of the two arch springs founded on it. A bench running across the back wall of Room 2

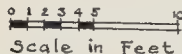
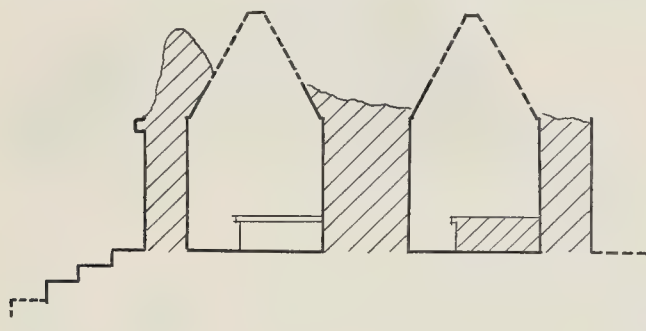


FIG. 6. Building E, Group I: section

and from the northeast corner to the door of Room 1 heightened the resemblance. Part of the vault survived in Room 1 so that it was possible to compute the height of the vault as about six and one-half feet, for the arch rose two feet in one foot two inches.

In the southwest corner of Room 1 there were found a deer antler, half a clam shell, and some sherds. In Room 2 fragments of dark red and light green plaster gave indication of the decoration of this chamber. Remains of a coping were observed along the west side of the building. This seemed to have been a medial moulding between the wall and roof planes of the façade.

G. C. V.

## BUILDING F

This was a burial structure jammed between the east end of Building A and the southeast corner of Building E. Its eastern edge was in line with the east edge of the plaza. Exact data on this mound are not clear, for plans and drawings are missing from the notes, and the memory of the excavator would have to supplement the missing data. Nevertheless, a plan and section which give the essence of the building, even if inexact in detail, were drawn from data contained in Merwin's notebook (Fig. 7).

The structure was oblong, with the long axis north and south, and was not a chambered building but a platform rising in two main blocks or masses. The bottom element

was about three and a half feet high and had along the west side a flight of three steps. The top was levelled off as a floor, thirty-three feet north-south by twenty-one feet east-west. Extending along this foundation, thick walls eight feet nine inches high were

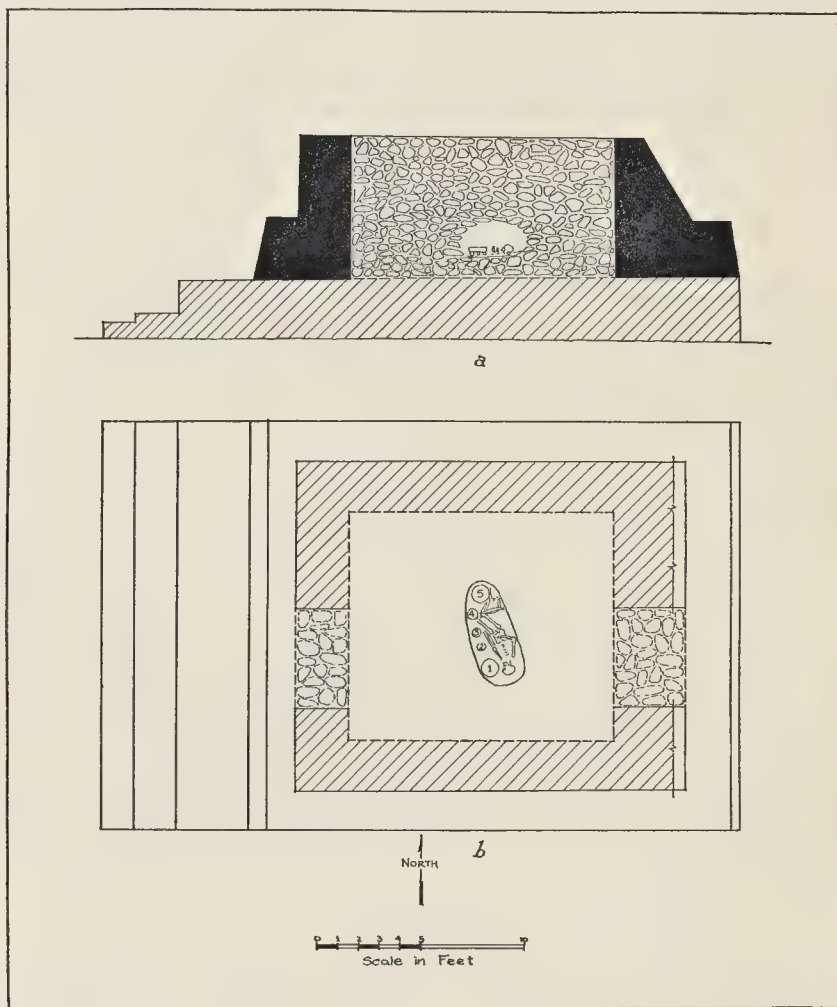


FIG. 7. Building F, Group I: a, section; b, plan

erected of rough stone. The exterior of this outer wall gave the appearance of two additional blocks, since a batter with its top ledge two to two and a half feet wide extended around the edge of the building on three sides, flush with the edge, but on the fourth, the west or staircase side of the building, the base of the batter was set back four and one-



quarter feet from the edge of the top stair (Plate 2, *a*). The measurements of the height of the batter are given as three feet eight inches for the west side and three feet for the east, indicating a slope in the floor. Possibly the upper part of the exterior of the wall rose vertically for five feet one inch on the west face, but on the east (and presumably the south and north faces) it sloped toward the top, the eastern height being given as four feet eleven inches. According to the notes, there seems to have been a sort of sealed door on the east side of the structure, but a photograph shows the platform to have been reached from the north. North of this door, the slope of the upper half of the wall was less pronounced than in the southern section. Apparently another such door gave access from the south. The data on these points are very confused and possibly the directions were written faultily through clerical errors. The logical arrangement for the doors would be at the head of the stairs at the west with possibly an eastern entrance. They have been so indicated on the map.

Data on the interior arrangement of the platform also are very vague. There seem to have been walls made of large unshaped stones running into the mound and other walls of the same character extended at right angles. It is not likely that these partitions were room walls or the sides of graves. They were probably construction faces, built to solidify the fill of the room.

In the northwest quarter of the interior of the mound, a badly disintegrated adult was found (Plate 2, *b*), flexed on its left side, head southeast, face southwest. It was separated from the floor by a thin layer of lime and earth, and had been wrapped first in a textile shroud, indicated by reddish dirt, and later in a mat or petate of which an impression was found on Pot 1. Ranged right side up in front of the body were five pots and scattered over the body outside of the wrappings were some two quarts of flint chips:

Finely ornamented bowl, three legs. (Plate 29, *a* and *c*)

Long cylindrical vase.

Finely ornamented cylindrical vase. (Plate 30, *a* and *c*)

Small bowl. (Plate 31, *a*)

Large bowl, three legs. (Plate 31, *d* and *e*)

A detailed description of these vessels will be found in the section on pottery (p. 72).

The thin layer of earth and lime extended over the entire floor of the mound. The body had been laid on this floor, and the vault and its fill had been constructed afterward, as shown by the fact that the mortar and stones were wedged around the vessels. The vault was roofed with flat slabs which were between a foot and a foot and a half above the floor. The length of the vault was five feet three inches and its width varied from one and one-half to two and one-half feet according to the size of the pots and the space occupied by the body, thus giving additional proof that the vault was constructed after the body had been laid out for burial.

Two pots, A and B, covered with the reddish brown dirt of the rotted textile, were found on the floor at the same level as Skeleton 1, between it and the southern doorway. With Pot A a jade bead (Plate 33, *v*) was found, and near Pot B a limestone spindle whorl, but the pots lay a foot and a half apart. A third, Pot C, was discovered upright and full of lime and plaster in the southwest wall of the platform proper a foot above the floor. A description of these vessels and objects also will be found in the section on pottery.

There seems no doubt that Structure F was intended solely for burial purposes and had not been converted from a habitation into a tomb. The method of constructing first a foundation and later the platform where the body had been prepared for burial is an interesting side light in Holmul burial customs. The height of the walls suggests that this



building might tie in with Buildings C and E. Merwin in his notes states expressly that it was built after Building A had been completed.

G. C. V.

#### CHULTUNES

Three hundred yards northwest of Group I were six chultunes. The large number of these storage basins in this locality is probably due to the favorable character of the limestone formation. Finely formed round openings were cut through the top stratum into more or less rough natural chambers below, which, in most cases, were worked out only in part. The average opening was two feet five inches, narrowing, a foot down, to about two feet. The average depth to the top of the earth débris was about six feet. Sherds of painted and unpainted pottery were found.

#### COMMENTARY ON GROUP I

Group I contains four main types of construction:

1. Buildings A and B, long narrow rooms, high narrow vaults, thick walls. (Figs. 2, 3, 4.)
2. Buildings C and E, relatively broad short rooms with benches, low broad vaults, medium walls. (Figs. 5, 6.)
3. Temple and Pyramid, Building D. (Fig. 1.)
4. Burial platform, Structure F. (Fig. 7.)

ROOM TABLE

Building	Wall Thickness	Room Width	Vault Height	Room Height	Room Length
A .....	3:6-6	3-3:6	7-7:6	12:2-13	26 +
B .....	3:6-7	3-3:6	7-8	12-13	25 +
C .....	2:6	8:6	6-6:6(?)	8-9	9-19
E .....	2:6	8:6	6-6:6	8	19:6
F .....	..	..	..	8:6	..

According to the plan, Buildings C, E, and F seem to have been constructed after Buildings A, B, and D had been built. Moreover, Merwin states definitely (Notebook 6, 1913-14, p. 7) that Structure F was constructed after Building A.

Uncarved stelae were found in this group. One fragment lay at the base of the entrance to Buildings A and B, and another east of them, measuring nine feet high by three feet seven and one-half inches wide and two feet two and one-half inches thick. A third, completely crushed, was encountered at the base of the slope, south of Buildings A and B. In front of Building C, a large circular altar was found, seven feet five inches in circumference by eighteen inches thick.

G. C. V.

## GROUP II

Group II (Fig. 8) lay about four hundred yards northwest of Group I and had a similar "acropolis" arrangement on top of a low plateau. The axis of the group was from east to west. Building A, an L-shaped edifice set on a wide platform, occupied more than half of the southern rank of the group. Almost abutting on this platform and extending slightly south of it was the domiciliary building, C. At the southwest corner of the plaza

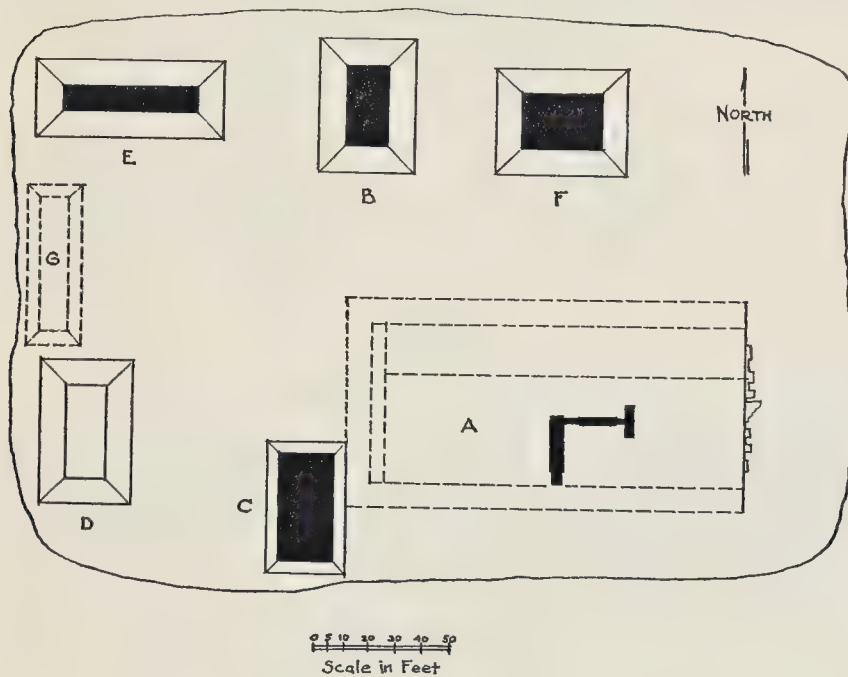


FIG. 8. Group II: plan

was another small building, D, presumably of the same character. North of Building D and facing east along the open plaza was a low, indefinite platform, G. An elongated building of three original rooms, E, occupied the northwest corner of the "acropolis." East of it lay the high pyramid, Building B, wherein were made the most important finds. East of this structure was Building F, a small house revamped into a platform. The northeast corner of the acropolis was unoccupied. Most of the buildings in this group bear traces of structural alteration of one kind and another.

G. C. V.

## BUILDING A

This occupied part of the surface of a platform situated in the southeastern quarter of Group II (Figs. 9, 10).<sup>1</sup> The structure consisted of three rooms arranged in the shape of the letter L.

Room 1, the base of the L, extended north and south, and the main entrance to the building was in the south of the room. This entrance received more formal exterior treatment than we have observed heretofore, because of the treatment of the lintel which projected out from the wall. Above this, another course of stones jugged outward in four steps, the center stone protruding farthest. This was then flanked by two stones projecting from a course behind, which was aligned flush with the lintel. About a foot behind these elements, on either side, extended the plane of the wall proper. A curious feature of

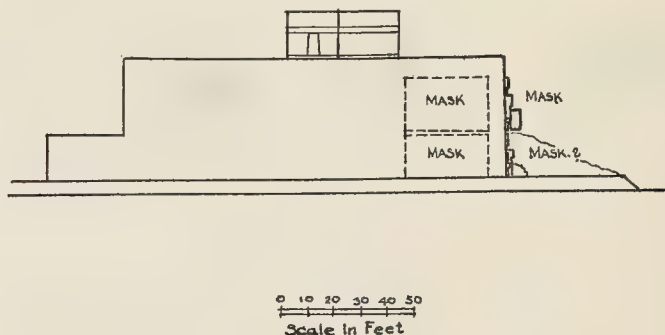


FIG. 9. Building A, Group II: section

the door was the thickness of the side walls, each of which attained the fantastic breadth of eight feet five inches. The room proper measured only eight inches wider than the door. The walls were but seven feet high and the height of the vault varied from two feet six inches at the south of the room to one foot eleven at the north. The sides of the vaults were convex (Plate 3). These measurements produced rooms with proportions very different from any of those in Group I.

A passage six feet long led from the northeast corner of Room 1 into Room 2. It had a rudimentary vault like those usually used to roof passages. The walls and roof were nicely plastered and the corners were rounded. Graffiti were inscribed on the walls, one of which seemed to represent a temple (Fig. 31). The position of the passage suggests that the side walls of Room 1 must have measured six feet in thickness at this point, in which case there must have been an offset to make up for the width of the wall at the entrance. Room 2 was only three feet wide, and, although it adhered to the proportions of Room 1, wall and vault together reached less than a nine-foot height.

A short passage three feet six inches in length, the same height as the western one but somewhat wider, led into Room 3. This chamber was a little shorter and wider than Room 2 and its vault was a foot or more higher, but the proportions were similar. The shortness of the passage leads us to believe that this room had narrower walls than the others.

<sup>1</sup> The map and sections of this building were drawn from data contained in Merwin's notes. If inexact in detail, the general situation is correctly set forth.

There are no data on the exterior of the building except that it had a roof comb. A measurement taken from the lintel of Passage 2-3 suggested a roof varying from three feet to four feet six inches in thickness. Another measurement gives the top of the stub of the roof comb as ten feet above the lintel of the south entrance or four and one-half feet above the top of the roof, as estimated from the previous measurement in Passage 2-3. There is no information, however, as to the contour of the roof comb; it was found above Rooms 1 and 3, but its presence over Room 2 was not recorded.

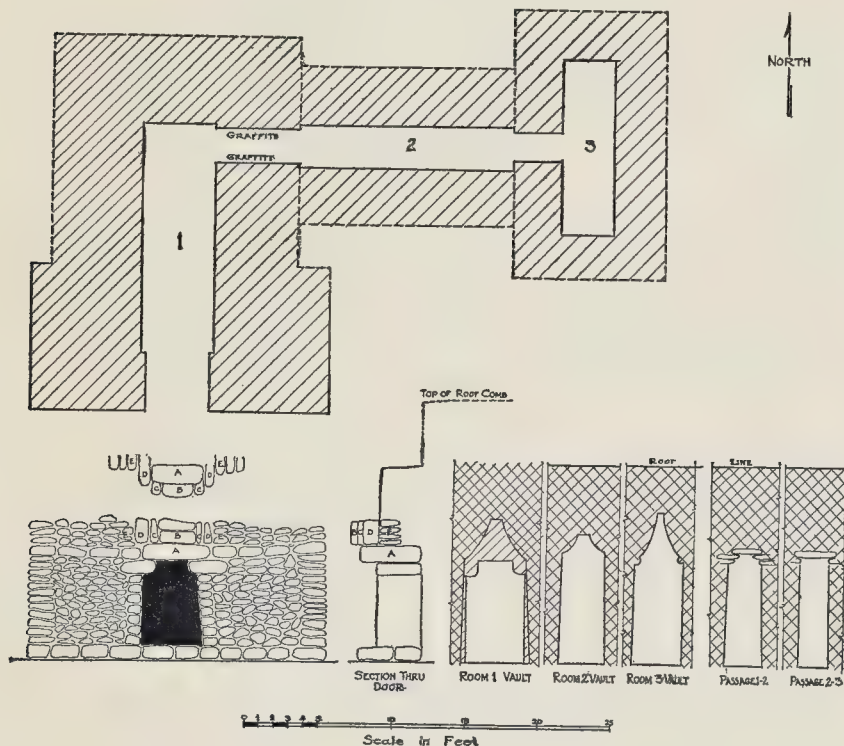


FIG. 10. Building A, Group II: plan and section of rooms

The platform was a complicated structure and the notes are too vague for a complete analysis. The area on top was very much larger than the space occupied by the building. Its maximum height seems to have been fifty-six feet seven inches at the south where the slope of the acropolis falls away. The minimum height was probably that of the north face, about thirty feet. On every side of this foundation, terraces were observed at various heights, but there was no evidence of a stair giving access to the top of the platform. The east and west terraces were about level with each other. The south was considerably lower, and the north somewhat higher.

The amount of debris caused by falling walls and peeling stone veneer made study of the contours of the mound difficult. On the east side of the platform, the wall was un-



covered to show an immense serpent mask of stone at least fourteen feet high and over thirty feet long extending almost the entire breadth of the platform (Fig. 11, Plates 4, *a*, and 5). The conventional monster or serpent face was depicted in full relief by a mosaic of carefully hewed stones. The eyes, three feet six inches by five feet six inches, were curved and recessed in their sockets. The ear plugs protruded as did the fangs from the main plane of the face. A mass of fallen masonry indicated the presence of a nose which was probably of the flat Peten type and not the protruding snout of northern Yucatan.

A double set of masks adorned the southern side of the building (Plate 4, *b*). These were in an advanced state of decay, but enough remained to show them to be of the same type as the east side masks. The upper mask apparently lined up with the eastern one and the lower mask reached to the southern terrace.

The interior of the mound was composed of rubble and piled rock. The rubble and plaster construction was found toward the exterior of the hearting, while the piled rock lay within. The innermost part of the mound may have been, in part, the natural contour of the hill.

It would seem that the platform of Building A was designed for a very much larger building than actually occupied it. The terraces suggest that platforms may have been built around a filled building, but Merwin's pits found no evidence of this. The use of mask decoration on the walls of a platform is common in northern Yucatan but more rare in the Peten district, possibly because of the difficulty of observation owing to decay and jungle growth. The thickness of the walls and the low arches of the building are of a different type from those of Group I.

G. C. V.

#### BUILDING B

This structure (Figs. 12, 13), while not so pretentious and not so well-constructed as some others of Maya origin, proved, upon examination, to reveal a number of interesting features as to burial customs, and to yield an intensely interesting collection of specimens of high cultural value.

Through addition and filling-in of rooms, and the construction of various forms of vaults, the sealing of doorways and other wall openings, the original building, probably a simple residential type, was so modified as to form a series of burial chambers. The remains indicated burial in the flesh, or burials of bones brought in from some other place of original interment. Afterwards, the entire structure had been completely covered by a mass of concrete (i. e. stone and lime) and the whole mound then surfaced with a well-worked stone slab veneer. This veneering, except where it had been injured by the growth of vegetation and the heavy fall of rains, preserved the building proper to a considerable extent.

Originally, Building B had consisted of the three parallel rooms, 1, 2, and 3, with an outer surface construction and a substructure. Later the vaults had been constructed through the floor of the building, as shown by the break in the floor plaster between Rooms 1 and 2, and the extant surface of the original substructure below the rooms.<sup>1</sup> Then by modifying the back wall an addition, Room 4 and its vault (probably constructed at the same time), had been made. The next steps in order of construction were the sealing of the rooms, the widening and forming of a new substructure face in front of the building, probably to serve as a retaining wall (Fig. 13), then the covering of the

<sup>1</sup> Yet examination of the notebooks and the plans gives the collaborator the opinion that the vaults were constructed anteriorly to the building. (G. C. V.)

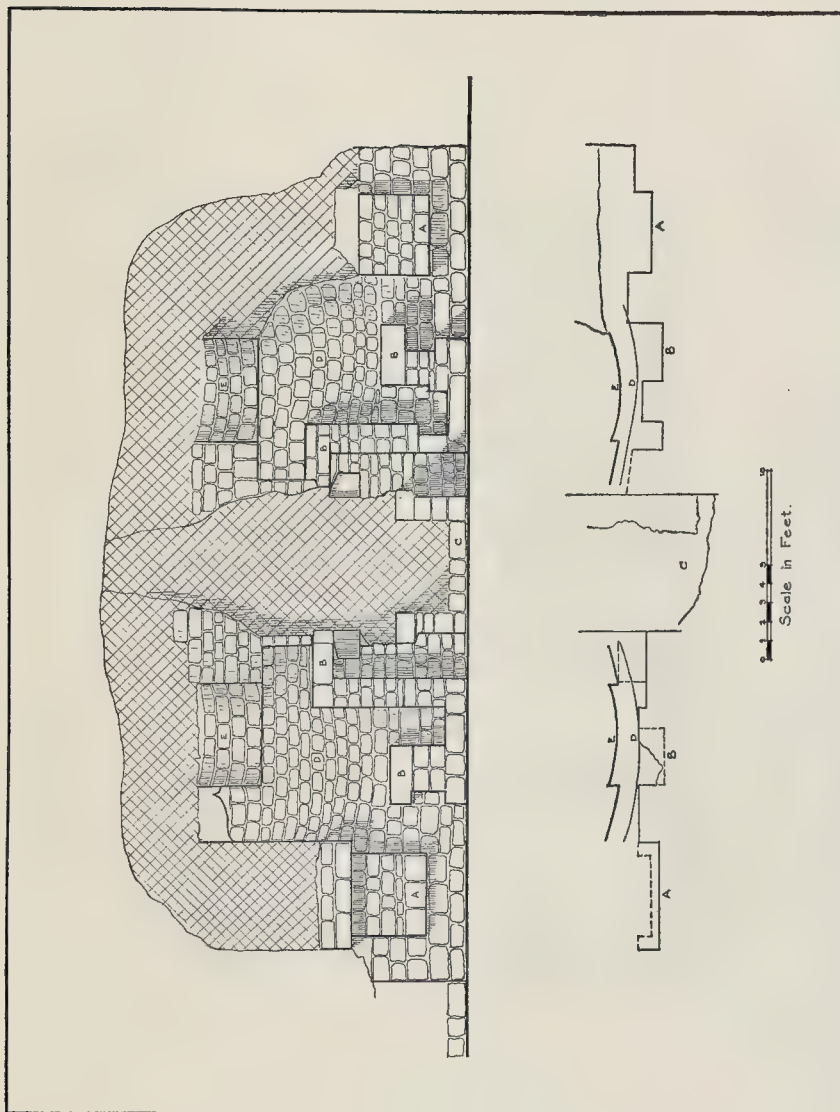


FIG. 11. Building A, Group II: mask, east side

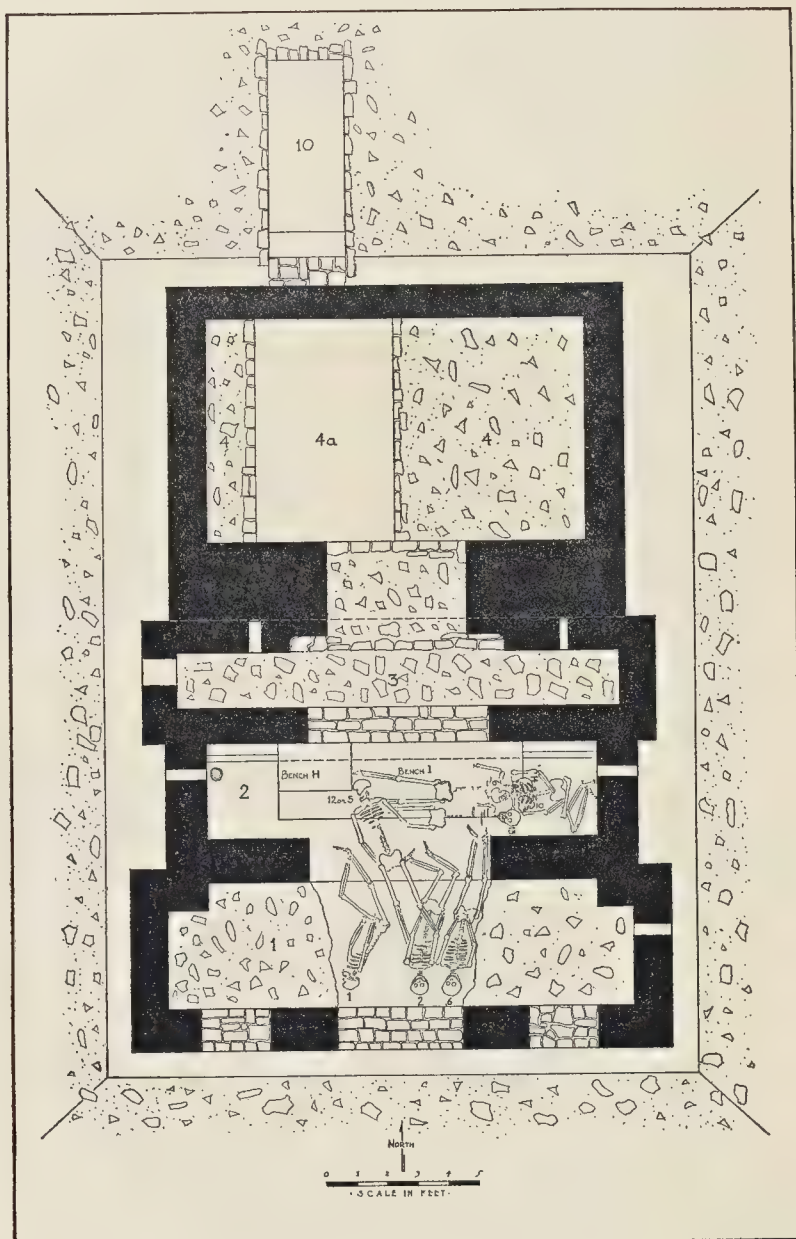


FIG. 12. Building B, Group II: plan





entire structure with concrete, the construction of the vault (Room 10) in this covering, and finally the facing of the surfaces of the mound.

**Substructure.** In a description of this building it seems most logical to begin on the outside with the exterior facings and construction of the filled-in material.

The original substructure was steep, and its sides were well-finished, all in a similar manner. Later, without disturbing the other three sides, a second front was added, formed by a rather complicated piece of masonry. The relations of these two facings may be seen in the cross-section, while the details of the outer surfacing may be seen in the photograph (Plate 7, *a*) and the drawings (Figs. 14, 15). The construction of the front face masonry suggested one or more sealed burial vaults behind it, but a rather hasty examination, due to the limited time at our disposal, did not reveal such interior chambers.

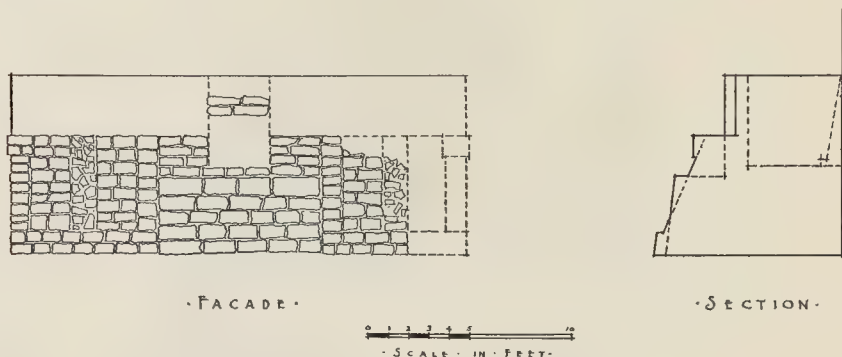


FIG. 14. Building B, Group II: façade, substructure

The top of the covering of the building was about forty-one feet above the court level and about seventy-five feet above the natural ground level to the north. It was four feet three inches above the roof, and its dimensions on top were the same as those of the building. Its slope was about one foot horizontal to one foot vertical, so that at floor level the covering on the sides of the building was about fifteen feet thick. The portion above the building was divided into two horizontal strata. The lower, built upon the roof, was three feet four inches thick and was formed of rather large rocks and mortar. The upper, separated from the lower by a thin, well-smoothed stucco stratum, was only eleven inches thick and consisted of small rocks, mortar, and considerable earth. It was covered with a smooth stucco surface. In the lower stratum, five feet six inches from the line of the north wall and six feet from the east wall of the building, were found two broken pots — one inverted and covering the other. In the latter were three very slender obsidian knives (Plate 32, *o-g*). In the upper stratum were found a number of specimens.

Almost all the pottery consisted of flat-bottomed, shallow bowls, which were well made of a highly polished reddish ware. Pot 1 was a shallow bowl, found badly crushed. In it were disclosed two pieces of jade (one with two perforations), two shell beads, and three fragments of obsidian knives. In contact with these two pots, but in a thin stratum of almost pure earth, was found a fragment of a human cranium and a few teeth.

Pot 5 was inverted over 4. Near the latter, and probably in it (it is now in fragments) were two pieces of obsidian knives, one large shell bead, and scattered about near it, three

other smaller beads of the same material. Pot 8 was inverted over 7 — no specimens found with these.

We have already called attention to this custom of burying entire pots and other specimens in the rubble work near the tops of mounds, for it surely had some ceremonial significance.

As has already been stated, this covering of the building, which really forms a mound, was of a rather level rubble masonry formed by unworked stones of various sizes, lime mortar, and earth, with a steep faced veneer. It will be seen in the photograph (Plate 8, *a*) that directly in contact with the building were good-sized stone slabs forming crude horizontal strata.

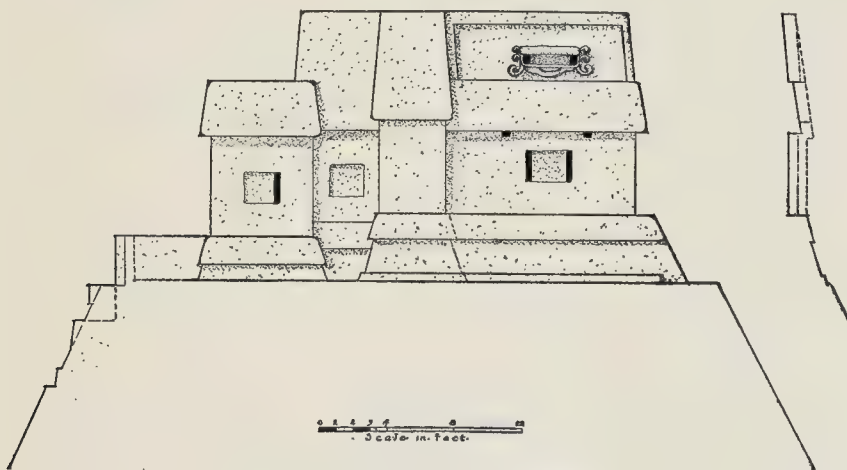


FIG. 15. Building B, Group II: east elevation

**Exterior Walls.** In spite of the destruction caused by the growth of vegetation and heavy rainfall, the exterior walls had been so well-protected by the thick rubble covering that the details of masonry construction and ornamentation could be easily seen. In the photographs (Plate 8) it may be noted that there was a rough, solid veneer, formed of rather heavy stones with small stone chips filling the cracks. A portion of plaster may be seen, and it is very likely that the entire stone work was smoothed off by means of a heavy coat of stucco. In a few well-protected places this stucco had been painted red.

The character of the rubble covering of the building may be seen in the photographs, but in this case the slabs which had been against the walls of the building were removed by us in our excavation.

**EXTERIOR WALL OPENINGS.** These may be considered as of two general classes: (1) windows or ventilators; (2) doorways.

The small, usually circular-shaped perforations through the walls from the chambers are found, varying in number and size, in practically all of the Maya structures. These have been called windows, but although they may have served as "peep-holes," yet because of their height above the floor of the room, and because the perforation is often so curved as to prevent a straight line of sight, it seems practically obvious that they were constructed to afford a rather limited system of ventilation. However, in this building

there were probably both kinds: the window, which is found in the lower part of the wall, a vertical slit-like opening extending from a shallow rectangular indentation in the exterior wall to the inner rooms; and the small, square or roughly circular perforations in the higher sections of the walls, which, no doubt, served merely as ventilators. (See stucco in north window Fig. 16.) A small opening through the wall of Room 2 which was flush with the floor and close to a basin-like depression in the room-floor, and which showed the action of fire, was very suggestive of a sort of flue for carrying away the fumes (Plate 12, *a*).

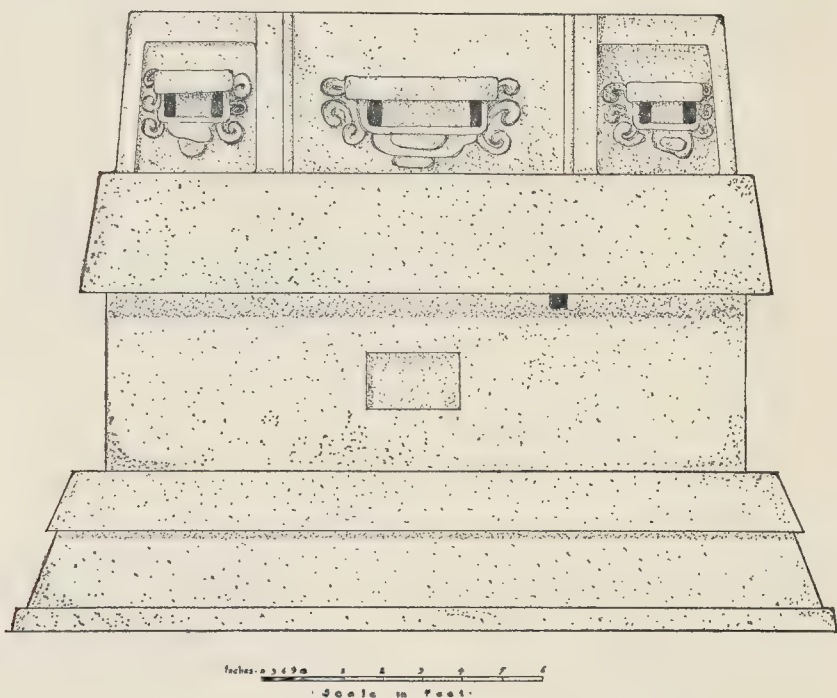


FIG. 16. Building B, Group II: rear façade

The only entrance into the building was by way of Room 1 and this was through three doorways (Plates 6 and 7). The main or center door was five feet three inches wide. On either side, separated from this doorway by a well-laid stone wall of a rectangular pier-like form, was a smaller entrance only two feet three inches wide, which was the same width as the masonry between it and the main entrance, and between it and the corner of the building. The lintels of the largest door had probably been of wood, while those of the smaller ones were formed by long stone slabs about six inches thick.

The section of the wall above the door lintels was in a very poor state of preservation, but it seemed probable that it was similar to that of the other walls. It may very well be that there had been stucco work, perhaps stucco designs, for in excavating in front of



the wall several fragments of stucco of various shapes were found, some of which were covered with red paint. The masonry of the walls was of stones, rather uniform as to size, and well-laid with the small cracks filled with rocks and lime mortar.

These three doorways, after the burial had been made, were sealed up with very crude masonry consisting of various sized rocks and a great amount of small stones and mortar. It seemed as though some of the larger rocks, which were well-shaped, had at one time formed a portion of another wall, since red paint was found on them, the painted portion now often concealed by the adjoining masonry.

The cornice of the upper section of the building, on all sides, was well-made but of rather simple design, consisting of straight faces, either vertical or battered, with projecting sections. It is possible that at one time it was decorated by various designs, as fragments of stucco of different shapes were found at the base of the walls. The workmen asserted that when the surrounding rubble was removed from the outer wall opposite the end of Room 2 there fell off a stucco representation of a human figure which had a long nose. A large portion opposite the west end of Room 4 was of very rough and projecting masonry, suggesting that it may have served as a foundation upon which a more or less elaborate design had been built (Plates 8, *a*, *b*, and 9, *a*).

**Room 1.** After removing the main sealed entrance, it was found that the portions of the room behind the lines joining the edges of this entrance to the edges of the doorway into Room 2 were completely filled. Directly on the floor of the filled portion was a layer of very hard plaster about one and one-half inches thick, upon which was a pavement of large flat slabs from six to eight inches thick. The first rock of this pavement next to the unfilled center of the room was large (three feet eleven inches by one foot eleven inches by seven inches), reaching from one side of the room to the other. It was well-worked with rounded corners and very much resembled a small, uncarved stela. Above the pavement, completely filling both ends of the room, was a mass of concrete composed of mortar and rock in about equal proportions (Plate 7, *b*). Perhaps one-half of the rocks were squared and heavy, weighing twenty pounds or more. A majority of them showed evidence of having been painted a red or grey color.

After removing this filled-in material, the details of the original room could be made out. One foot four inches from the ends of it, the partition wall between Rooms 1 and 2 abruptly increased in thickness, making the side walls of Room 1 only three feet three and one-half inches apart at both ends.

The vault of this room was unusual in that while the south side had a plain surface, the northern wall of the vault, by means of bevelling the exposed ends of the over-lapping stones and by the stucco modelling, presented a surface formed by a series of curves. The plaster on this vault had been painted red.

A peculiar feature was found in connection with the wall openings in the south wall on both sides of the main entrance. Their character and arrangement suggested their use for the attachment of doors of solid wood, or for the suspension of curtains of some sort, for the stones showed considerable wear.<sup>1</sup>

Across an opening in the southwestern corner, its ends embedded in the masonry of the walls, was a piece of rock (horizontal position) whose dimensions were about eight inches long, two and one-half inches wide, and three-fourths inch thick. It projected about twelve inches in front of the intersection of the two walls. Directly below it, but in a roughly oval opening, which was entirely in the masonry of the south wall, was inserted a rock slab with a circular perforation one inch in diameter, flush with the wall surface and reaching to the room corner.

<sup>1</sup> Cf. door between Rooms 4 and 6, Building C, Group I.



About a foot from the main entrance and four feet five inches from the floor was a square opening into which had been inserted and held firmly by concrete and rocks a circular stone set flush with the wall. The diameter of the stone was four and one-half inches and that of its perforation one inch. Directly below it and seven inches from the floor was a similar arrangement. Differing but slightly as to construction and relative position in the room, the same sort of openings were found in that part of the south wall east of the main entrance.

In the east end wall of this room, its bottom two feet from the floor and its side seven inches from the north wall, was a narrow vertical opening five inches wide and one foot high, which served as a window or ventilator. Its exterior opening may be seen in Plate 7, *a*.

The section of the room at the main entrance was almost completely filled with the débris of the vault and roof which had fallen in when the wooden lintel gave way.

**Room 2.** This room was of the usual type. The vault had a narrow offset with each of its walls sloping in the same plane and the entire surface carefully smoothed off by stucco plaster. The floor, beginning at Room 1 and forming the floor to the south entrance, was from six inches to eight inches higher than that of Room 1. This entrance was six feet wide and five feet ten inches high to the bottom of the lintel. The lintel, about eleven inches thick and one foot five inches wide, was, as shown by the impressions in the concrete, constructed of two well-hewn timbers which had not decayed. The vault began at the same level as the top of the lintel and was three feet two inches high.

Built upon the floor were two benches which are shown as H and I (Fig. 12). (Also see Plate 12, *a*.) The former had been constructed first, and against it on two sides had been built Bench I which, where joined together, was the same height as H (nine inches), but decreased to only five inches as it extended eastward. Bench H was of well-constructed concrete, covered with plaster. Its surface showed the action of fire on its west and south sides. Bench I was of crude concrete but very hard and, as has been said, the height at its west end was identical to that of Bench H, but gradually diminished to its east end. It was built against the north wall and did not quite extend to the south or the end walls of the room. Along the north wall of the room, extending its entire length, was a small projection of masonry. The benches H and I were built against this and partially covered it.

Piercing the west end wall, and about five inches from the north wall, was a small roughly rectangular opening. The bottom must have been formed by a continuation of the room-floor, since it was carefully plastered through to the exterior wall of the building. Before being cleared out by our excavations, it was completely sealed by means of plaster and small rocks. About two feet from the mouth of this opening and practically under it was a small basin-like depression in the floor of the room. From the photograph may be seen the opening, the basin, and also a portion of Bench H. The depression was eight and one-half inches in diameter and six inches deep, and was filled with charred wood and fire-burnt stones and mortar. The floor around it as well as the walls nearby showed the effect of a rather intense fire. This burnt area had been later covered over with stucco plaster of a greyish color. The wall opening probably served as a sort of flue.

In the east end of the room was a hole through the wall. It was similarly located to the opening in the west end, but was a little smaller, and its bottom was sunk below the floor level. There was no basin-like depression in connection with it.

**ARTICLES FOUND ON FLOOR OF ROOM 2.** These articles were scattered throughout an area approximately fourteen inches by twenty-five inches (long diameter east and

west). They were not directly on the floor, but were separated from it by a stratum of mortar one-half to one inch thick. No human bones were found among them.

Above the articles was a stratum of concrete, from four to seven inches thick, separating them from the skeletons. They were also separated by concrete from Skeleton 12.

- Two inscribed shell discs. (Plate 36, *d* and *f*; Fig. 29)
- Five shell objects.
- One fragment jade bead.
- One hundred and fifty shells — two perforated, some halved. (Plate 35, *z*)
- Twenty-five small animal jaws, perforated. (Plate 36, *b*)
- One cupped stone.
- One large shell.
- One large shell, halved. (Plate 34, *f*; Fig. 27, *a* and *c*)
- One hundred worked pieces of shell. (Plate 35, *a*, *b*, *g*)

Some green and red paint was found in such a position as to suggest that it had covered some perishable article. It was impossible to determine the shape.

**POTS FOUND IN WEST END OF ROOM 2.** These were found on the stratum of large rocks, on a slightly lower level than that on which Skeletons 9 and 10 were found. The bottom of Pot C (lowest) was two feet nine inches below the lintel between Rooms 1 and 2.

Pot A (Plate 26, *b*): Finely ornamented bowl; crushed; bottom up, resting against wall in north-west corner; also in contact with Pot B.

Cover for Pot A (Plate 26, *a*): Plain red with head of an animal for knob; found crushed, portions scattered.

Pot B: Large red bowl with four hollow legs; entire; found to east of Pot A and over Pot C.

Pot C (Plate 26, *c*): Black bowl; found under Pot B.

For position of these pots, see photograph (Plate 11, *b*).

**Burials in Rooms 1 and 2.** Almost directly upon the floor of these two rooms were found the skeletal remains which have been numbered 1 to 10 inclusive, and numbers 13 and 14. As has been stated in the description of Room 1, its original floor had been built up so that it was flush with the floor of Room 2, making a larger level area suitable for the various burials. A very good idea of the method of burial, the relative position of the skeletons and their arrangement in relation to the building itself may be seen in the plan (Fig. 12).

There was a sequence of interments and the evidence shown gives the following order:

1. Skeletons 13 and 14, as they had been disturbed by 5.
2. Skeleton 5.
3. Skeletons 1, 2, and 6, for the toe bones of 5 were found under left shoulder of 2.
4. Skeleton 10, perhaps at the same time as 1, 2, and 6, as it was above 5, 13, and 14, separated by a mass of rock and concrete.
5. Skeleton 9, as it had disturbed 10.

Skeletons 3 and 4 may have been interred at the same time as 13 and 14 since 3 was found as a few bone fragments upon the left shoulder of 2, and 4 as a few pieces on the pelvis of the same skeleton. It is very likely that what has been designated as 3 and 4 are really portions of the same skeleton which had been disturbed when 2 was buried.

**SKELTON 1.** This was the remains of a young adult buried upon its left side. Under it was a dark brown stratum which was probably the remains of decomposed garments. A list of articles found with the skeleton is to be found at the end of this section, while a

photograph taken under very unfavorable conditions shows a few of the pots found at the side of the skull (Plate 9, *b*).

**SKELETON 2.** This was an adult, buried horizontally upon its back, the legs flexed. The toe bones of Skeleton 5 were found under its left shoulder, separated from it by a two to four inch stratum of earth and lime. The toe bones of 5 were directly upon the floor. The articles found with 2 are at the end of this section.

**SKELETON 5.** This was an adult buried after 13 and 14 and before 2. It was very much disarranged, due to the fallen-in masonry.

**SKELETON 6.** This was an adult in a very poor state of preservation.

**SKELETONS 9 AND 10.** These two skeletons were buried upon about the same level, separated from the floor in the east end of Room 2. Under 10 were large rocks and earth about three feet thick and under 9 was a mass of concrete of the same thickness. Skeleton 9 was fairly well in position but 10 had been very much disarranged in the burial of 9 and also by the falling in of masonry (Plate 10, *a*). Near both skeletons were found a few small pieces of charred wood. Immediately in contact with the bones was a brownish black material.

**SKELETONS 13 AND 14.** The bones of portions of these two skeletons sometimes were embedded in the concrete which covered them, but usually were separated from it and surrounded by a soft, dark red matter, looking very much like some burnt substance mixed with earth. This red material was found only in contact with, or near, the bones. Often the bones were slightly tinted by it. It was not the same as the dark brown powder which has been found around the bones and which was perhaps decayed fabric or some other organic matter. The photographs (Plates 11, *a* and 12, *b*) give a good idea of the crushed condition of these skeletons, and another photograph (Plate 10, *b*) was taken of some of the pots in situ. (The list of the articles found is at the end of this section.)

#### ARTICLES FOUND WITH THESE BURIALS.

##### *With Skeleton 1.*

- Pot 1: Polychrome lacquer composite silhouette bowl; found under skull — crushed. Small fragments of shell and animal bones were found in Pot 1, also red and green paint which evidently had been on some sort of chest covering of Skeleton 1. It was in broken and scattered pieces and was found in an area of about four inches square. Two small bones were found mixed with red and green paint.
- Pot 2: Red lacquer composite silhouette bowl; found in Pot 3.
- Pot 3: Red lacquer simple silhouette bowl; found under Pot 2.
- Pot 4: Marbled slate simple silhouette bowl; found within Pot 5.
- Pot 5: Simple silhouette bowl, red lacquer interior, unshaped exterior; found under Pot 4 and to right of Pots 2 and 3, in contact with the right finger bones. Some small pieces of charred wood were found in this pot; shell in fragments, found under pot.
- Pot 6 (Plate 26, *d*): Pot stand, black lacquer; found at the proximal end of the left tibia.
- Pot 7: Simple silhouette bowl, yellow lacquer; found within Pot 8.
- Pot 8: Simple silhouette bowl, red lacquer; to the left of and in contact with Pot 6, also in contact with Pot 10.
- Pot 9 (Plate 26, *e*): Vase with four solid cylinder legs, red ware; found within Pot 10.
- Pot 10: Composite silhouette bowl, misfired red lacquer; the center of this pot was eight inches from the center of the left tibia of Skeleton 1.
- Pot 11 (Plate 27, *c*): White bowl attached to red pot stand; in contact with Pot 10.
- Pot 12 (Plate 27, *a*): Spouted bowl, mottled grey lacquer with animal effigy cover; found four inches from the proximal end of the right femur; had been sunk in the material which separates the skeleton from the floor, its rim being on a level with the bottom of the femur. The distal end of the left ulna and radius was above it. With this bowl were the following:  
Shell in fragments; found under the right hand bones.



- Jade ear plug; found near and to the right of the pelvis. (Plate 33, cc)  
 Potsherd disc; found at back of skeleton near the middle of the vertebrae.  
 Pots 13 and 14 (Plate 27, b, c, d): A bowl and an effigy vessel were found in contact with and to the right side of pelvis and left femur. With these were:  
 Jade ornament; found at right side of pelvis near jade ear plug.  
 Green and red paint; found scattered along and over the left tibia, and along the left femur.  
 Pot 15: Grey porous olla with pitcher mouth; found between the left and right femur near the pelvis.  
 Pot 16 (Plate 24, b): Black lacquer composite silhouette bowl; found in contact with the left femur and pelvis and resting on the right femur; crushed. Found with this:  
 Perforator, barb of sting ray, under Pot 15. (Possibly belonged to Skeleton 5.)  
 Painted slate — red design; found under Pot 15.  
 Shell; found in Pot 16.  
 Shell containing red ochre, found under left toe bones and below Pots 17 and 18.  
 Pot 17: Large composite silhouette bowl, misfired red lacquer; found resting on Pot 18.  
 Pot 18 (Plate 27, f): Simple silhouette bowl, black ware, indented sides; found at end of and partially covering right and left toe bones.  
 Red and green paint; found along left tibia.  
 Pot 19: Bowl with spout and effigy cover.  
 Bone finger ring (Plate 35, bb); found near left hand bones.

*With Skeleton 2.*

- Shell ornament; found near left hand.  
 Obsidian knife; found near digital end of right femur.  
 Articles found near skull:  
 Stone beads (2).  
 Cut shell (2).  
 Fragment jade (2).  
 Unknown substance (1).  
 Fragment green paint (1).  
 Cut bone (1).  
 Miscellaneous teeth, some worked.  
 Articles found among ribs and vertebrae:  
 Jade pieces varying from pea size to three-fourths of an inch by one inch by one-quarter inch.  
 Most of these were painted red on one side.  
 Jade beads (5), jade bead fragments (2).  
 Barb of sting ray.  
 Fragment obsidian knife.  
 Flint point.  
 Cut shell and shell ornament (6).  
 Fragment worked animal tooth (1).  
 Mica fragments (3).

*With Skeleton 3.*

- Articles found around skull:  
 Fragment shell.  
 Shell ornament.  
 Shell ornament fragments (4).  
 Jade pieces (7).  
 Fragment hyoid bone (1).  
 Mica fragment (20 plus).  
 Fragment shell ornament and a portion of the skull.

*With Skeleton 5.*

- Pot 1: Large black bowl, composite silhouette; found crushed, resting on the femori and in contact with the pelvis. In it was a skull.  
 Pot 2: Black, fine design; found crushed under 1 and over the lower femori. Missing fragments were also found with those of Pot 16, Skeleton 1. In this pot were the following:



- Jade bead; found near Pot 1 at right over pelvis of Skeleton 5.  
 Obsidian knife; found near jade bead above.  
 One tooth; tip found at right of Pot 1.  
 Shell; found at right of distal end of right tibia.
- Pot 3 (Plate 25, *a* and *c*): Effigy cover in polychrome, finely ornamented; cover for Pot 4. It was inverted over 4.
- Pot 4 (Plate 25, *b*): Polychrome composite silhouette bowl, finely ornamented, painted green; found under cover, at left of pubic bone. Both 3 and 4 were slightly under the pelvis, tibiae, fibulae, and feet bones of Skeleton 2.
- Pot 5: Small black pot, indented edges; found on Pot 3. With it were:  
 Fragment shell; between femori. (Plate 34, *b*)  
 Perforated shell ornament; found in contact with proximate end of right side of right humerus.  
 Bone cylinder about three by five-eighths of an inch with bone ring around one end; found near right hand. (Plate 36, *i*)  
 Three fragments carved antler; found near left hand. (Plate 36, *m* and *o*)  
 One jade, one bone, and one shell piece, with serrated edges; found near left hand. These were possibly buttons.  
 Worked shell, no design; over Pot 3.  
 Unknown object, painted red; over Pot 3.  
 Bone perforator, made from barb of sting ray; over Pot 3.  
 Fragment bone perforator, as above; near right hand.  
 Animal tooth; found at right of Pot 1. (Plate 36, *p*; Fig. 31, *c*)  
 Three jade beads; near left hand.  
 Fragment of barb of sting ray; found between femori — lower part.  
 Serrated bone; found between femori — lower part.  
 Worked shell; found between femori — lower part.  
 Jade bead, large; near Pot 1 and near pelvis.  
 Fragment barb of sting ray; near left hand.  
 Fragment carved antler; near left hand.  
 Bark; probably intrusive near left hand.  
 Several fragments barbs of sting rays.  
 Barb of sting ray with glyphs; found near left hand. (Plate 36, *e*)  
 Fragment barb sting ray; found around pelvis.  
 Fragment shell; found around pelvis.  
 Shell 1; on floor — convex up.  
 Shell 2; found resting convex side up on the upper partially articulated ribs; was only eight inches from edge of Skull 12. Under it was also a left scapula.  
 Eighteen shell beads of various sizes; found under Shell 2.  
 Nineteen deer toe bones, some worked; found under some lower ribs partially articulated  $\left\{ \begin{array}{l} + 6' 5'' \\ - 2' 9'' \end{array} \right.$   
 Bone perforator (bird's bill); found under right pelvic bone.  
 Pelvis  $\left\{ \begin{array}{l} + 7' 11'' \\ - 1' 6'' \end{array} \right.$   
 Barb of sting ray; found among vertebrae, some articulated  $\left\{ \begin{array}{l} + 9' 1'' \\ - 1' 7'' \end{array} \right.$   
 Shell 1  $\left\{ \begin{array}{l} + 4' 9'' \\ - 2' 11'' \end{array} \right.$  found to right of lower ribs.  
 Shell 2 (see above).
- Articles found near Shell 1:  
 One shell ring, grooved rim.  
 One shell ring, small.  
 One worked shell.  
 One tooth.  
 One small animal jaw.  
 Seven pieces sulphur.  
 Two pieces mineral.  
 One piece green paint.

Articles found within a radius of six inches of skull of Skeleton 12 (or 5):

- Fifty-four shell beads.
- One shell bead, long.
- One mica pyrites bead.
- One pyrites bead, broken.
- One jade ornament.
- Seven shell ornaments.
- Twenty-five pieces of mineral.
- Fifteen pieces of sulphur (pyrites).
- Two teeth.

Articles found among ribs:

- Twenty-one shell beads.
- One piece worked shell.
- Two animal teeth.
- Two shell ornaments.
- Fifty pieces of sulphur.
- Thirty pieces of mineral, worked.
- Three pieces of green paint.

Found under lower ribs near left humerus:

- Nineteen deer toe bones, some worked. (Plate 36, a)

*With Skeleton 6.*

- Five teeth: Filled with pyrites.
- Worked piece of pyrites: Found near skull.
- Pot 1 (Plate 27, h): Bowl, red lacquer, flaring sides, flat bottom; inverted and covering the skull.
- Pot 2: Similar to No. 1, held the skull.
- Shell and two jade ear plugs (Plate 33, bb and dd): Found above Pot 1, the plugs in contact with cast filled-in masonry.
- Jade bead; two pieces of jade; paint (?); pyrites (?): Found near skull between Pots 1 and 2.
- Fragment of shell; burial clay: Found near skull between Pots 1 and 2.
- Perforated shell: Found probably on chest.
- Shell: Found in contact with left shoulder.
- Bead: Found among ribs, upper part.
- Bone ornament: Found in contact with proximal end of left humerus.
- Perforated shell: Found in contact with proximal end of right humerus.
- Shell: In contact with distal end of left humerus and also in contact with proximal end of left tibia of Skeleton 5.
- Pot 3: Vase on three strap feet, red; found in Pot 4; contained bones of small animal.
- Pot 4: In contact with left ulna, lower part of pelvis, and slightly under right femur; large amount of red and green paint around it and under it, probably had been painted.
- Animal bones: Found in Pot 3.
- Pot 5 (Plate 27, g): Small pot found on rim of Pot 4 under middle of right femur.
- Pot 6 (Plate 27, i): Bowl, black ware with spout; found above east half of Pot 6 and resting against the door (east side).
- Pot 7 (Plate 29, b): Found below 6 and resting in east half of 4.
- Shell: Found under west edge of Pot 4.
- Ear plug, jade: Found above Pot 1.
- Shell ornament: Found in contact with proximal end of left humerus.
- Worked piece of mica: Found near skull.
- Articles found in contact with lower part of left humerus:
  - Large perforated shell.
  - Bone and shell worked fragment.
- Articles found among upper ribs:
  - Piece of jade.
  - Shell.

Ten shell ornaments, two antlers.  
Object.  
Three pieces of slate, formerly painted red.  
Three pieces of mica.  
Fragment shell (large), painted red.  
Red and green paint.  
Ear plug, jade: Found over Pot 1.

Articles found around skull and between Pots 1 and 2:

Jade bead.  
Fragment shell, part painted green.  
Fragments of jade (4).  
Pyrites, some inscribed.  
Perforated shell: On "chest." (One also found between Pot 4 and pelvis.)  
Small worked bone: Found near pelvis.  
Jade ear plug: Found in contact with distal end of left humerus.  
Rubbing stone: Found near proximal end of right femur and near Pot 4. Had been painted red.  
Only a few scratches on it.  
Peculiar bone ornament: Found between lower parts of pelvis, with Pot 4.  
Small animal bones: Found within Pot 3.  
Fragment of two large perforated animal teeth: Found near proximal end of right femur and near Pot 4.  
Large animal tooth: Found in contact with upper pelvis and close to left humerus.  
Bone beads (2).  
Mica.  
Small engraved skull (Plate 36, c): Found near right shoulder and against filled-in masonry (east side).

Articles found between Pot 4 and pelvis:

Red and green paint, probably from pot.  
Small animal bone.  
Fragment of worked tooth.  
Two large animal teeth transcribed with glyphs. (Plate 36, l)  
Large bone bead.  
Carved antler. (Plate 36, n)

*With Skeleton 9.*

Small pieces of charred wood: Found in earth about skeleton.  
Small fragment of obsidian knife: Found near right of skull.

*With Skeleton 10.*

Small fragment of worked flint: Found at top of skull.  
Pot 1 (Plate 28, a and d): Found to the left of and below left pubic bone. This pot was crushed, but erect with its lid over one side of its rim.  
Pot 2 (Plate 28, c, e, f): Found next to Pot 1 near north end of room, on its side and crushed. (Both of these pots were against the north wall of the room and near left humerus of Skeleton 9.)  
Small animal skull: May have been in Pot 2.  
(Below the skull about eight inches was found a human tooth with three fillings [Plate 32, e]. Probably belongs to Skeleton 10.)

*With Skeletons 13 and 14.*

Shell 4: Between skulls of 13 and 14.  
Shell 5: Rim slightly under that of Shell 1 and to the west; rests on ribs and vertebrae.  
Found among ribs — near Shells 4 and 5:  
Fifty-four shell beads.  
Two shell discs. (Plate 35, aa and hh)  
Three small animal bones.  
Green paint, probably from Pot 6 or 7.

Found near skull of Skeleton 14:

- Five shell beads.
- One jade bead.

Found near skull of Skeleton 13:

- Six shell beads.
- One cut shell.

Pots found in east end of Room 2. (For position, see photograph; evidently have been carelessly placed.)

Pot 1, cover for Pot 2 (Plate 21, *a* and *c*): Found crushed in 2; black, fine ornamentation.

Pot 2 (Plate 21, *b*): Black bowl; in contact with east wall, one and one-half inches from north wall and resting on the ledge along north wall, and on Pot 6, in contact with spout of Pot 4. Charred wood and small animal bones were found in it.

Pot 3: Composite silhouette red bowl; bottom resting on Pot 4, in contact with east wall.

Pot 4 (Plate 20, *d*): Olla unslipped porous ware; in contact with east wall. Incised design, with spout.

Pot 5 (Plate 20, *c*): Olla, figure of peccary, with spout; approximate center of room north and south, and about one foot from east wall, snout down, resting on 6.

Pot 6, cover for Pot 7: Found in place so that Pot 7 was practically free from earth; painted green and red.

Pot 7 (Plate 20, *e*, and Frontispiece): Fine bowl painted green and red; was not directly on the floor, but separated from it by about two inches of earth and rocks; was empty — no animal bones.

Pot 8 (Plate 22, *a* and *c*): Crushed cover for Pot 9, finely ornamented, knob was a tiger's head, black and red; found resting against Pot 10.

Pot 9 (Plate 22, *b*): Black bowl; found resting on side, bowl parallel to south wall, about one and one-half inches from it, and about five inches from east wall.

Pot 10 (Plate 23, *a* and *c*): Cover for Pot 11, finely ornamented, grotesque head for knob, black.

Pot 11 (Plate 23, *b*): Black bowl; in contact with east wall, north rim one foot, eight inches from north wall, resting on floor.

Pot 12 (Plate 24, *a* and *c*): Cover, possibly for Pot 16, Skeleton 1, black and red ornamented. Under it was found the cranium of Skeleton 14.

A few fragments of human bones were found under these pots.

**Room 3.** This room was very narrow, with a well-defined arched vault, and was little out of the ordinary as far as details of construction were concerned. There were but three minor wall openings, one of which was flush with the floor level, and thus similar to those found in Room 2. This was in the north wall, two feet four inches from the west wall. Its dimensions were six and one-half inches high and four and one-half inches wide. What may have served as a window was an opening (five and one-half inches by ten inches) in the west end wall, three feet nine inches from the floor and nine inches from the south wall. The third opening (three and one-half inches in diameter) was in the north wall, one foot eight inches from the east wall, and six feet one inch from the floor.

This room had been filled with concrete and large rocks to within six inches of its ceiling. In the doorway leading into Room 2 was solid masonry of large worked stones laid in mortar (Plates 12, *a*, and 13, *a*). In the ends of the room the concrete was less compact, consisting of only a few large rocks, but many small rock fragments, all cemented together without forming a solid mass. Some of the larger rocks in the doorway still preserved fragments of red painted stucco, and many of the smaller rocks, especially those found in the east end of the room, showed the action of fire. In the center of the room, about one and one-half feet from the floor and carefully laid in mortar horizontally, was a large rock two feet eight inches by three feet by five inches with rounded corners. Carved upon its surface was an L-shaped groove from one-half inch to one-eighth inch deep. Fragments of red painted stucco were still visible in this groove. Scattered about were pieces of stones which also showed this red painted groove.



In this filled-in mass were a few animal bones and potsherds, while in the doorway to Room 2, about four feet six inches from the floor, were found a few fragments of human bones.

**Room 4.** As has been stated above, this portion of the building was a later addition. It did not use the north wall of the original building to form its south wall, a method often employed in the construction of additions elsewhere in the Maya area; but the room, which was somewhat larger than the other rooms, was formed as a separate unit, merely adjoining the original building. The vault was of peculiar construction presenting in cross-section the appearance of a series of terraces. The faces of these so-called terraces sloped except at the extreme top, where they were vertical. The sharp corners had been rounded by means of stucco molding. The masonry of the entire room was of fine construction with a plastered surface.

The wall openings have been adequately explained above in the description of the exterior walls. A portion of the north wall of Room 3 had been removed to form an entrance. At first this entrance was about the same width as the openings between Rooms 1 and 2, and Rooms 2 and 3. Later, however, it had been narrowed. This had been done by lengthening each of the sections of the south wall of the room through the addition of about a foot of masonry, set back about seven inches from the north wall line of Room 3 (Plate 13). This entrance had been sealed up by means of well-laid masonry. Behind this masonry the room was entirely filled in its east portion by a mass of mortar and rocks of various sizes. In its west part had been constructed a small, rather crude, unplastered room, 4a, whose long axis lay at right angles to that of the main room. The north and south ends were formed by the walls of Room 4. Its west wall was of rough masonry about one foot eight inches thick, built against the west end of Room 4, and its east wall formed part of the concrete which filled the east part of the main room. The floor consisted of rough concrete about two inches thick. The vault was built of long limestone slabs resting upon four strata of overlapping stones.

**SKELETON 15.** In the south end of this small room in a stratum of some black material were found a few human bones, some broken. It was clear that the interment was of only a few bones, as there was no evidence that a burial in the flesh had subsequently been disturbed.

At various places on the floor of this chamber, showing no premeditated arrangement, were found the following articles:

- One large conch shell in fragments.
- One grooved stone.
- One worked stone.
- Four worked bones.
- One piece of obsidian.
- One piece of jade.
- One shell ornament.
- Charred wood.

**Room 7.** After removing the mass of rubble masonry which filled the east portion of Room 4, it was found that the original floor had been covered with a four inch layer of concrete, forming a rough secondary floor. The plaster of what had been the exterior wall of Room 3 extended unbroken below both the floors of Room 4. After removing a portion of these floors and following down this wall, the top of Room 7 was revealed. This chamber, then, was built against the substructure of the original building (Rooms 1, 2, and 3), with its roof against the sloping side, one and one-half feet below the level of the lower floor of Room 4.

The roof consisted of two thicknesses of poorly squared slabs with a capstone. Two feet of the latter was exposed, and the lower layer, facing the ceiling, projected four and one-half inches from the wall line. This crude vault was covered with a heavy coat of mortar, but had not been plastered. A similar condition was noted in the south wall. That is, below the sloping wall of the original substructure was a hole two feet deep and four feet eight inches in diameter. The masonry taken from these holes had been removed from the chamber. Even a plausible theory can hardly be advanced as to the reason for lengthening this room. The amount of decomposed débris found at the time of excavation was not sufficient to warrant the supposition that more space had been needed.

Through the floor of the vault, which was rough and carelessly covered with mortar, we dug a hole about three and one-half feet deep, but nothing of particular interest was disclosed.

**SKELETON 16.** Throughout this room were found the broken bones of an adult skeleton. These, as well as the specimens, were found in a fine reddish deposit which covered the floor and was about one and one-half inches thick. The greatest number of these fragments of bones were found in the center or the north end of the room.

All but one of the pots were crushed, probably by the falling of the rocks and mortar from the roof of the room.

*Articles Found with Skeleton 16.*

Shell: Found one foot three inches from north wall, and one foot five inches from west wall.

Pot 1: Plain polished black olla.

Pot 2: Plain; found in fragments between Pots 1 and 3.

Pot 3: Large red bowl; contained entire fragment barb of sting ray and small worked stone.

Pot 4 (Plate 19, *g*): Black terra cotta stand; incised.

Pot 5 (Plate 20, *a* and *b*): Black ware; incised cover for Pot 6; crushed.

Pot 6 (Plate 20, *a*): Black incised bowl.

**Room 8.** This room was found because it was noticed that the painted plaster on the end of the floor between Rooms 1 and 2 extended below the floor of Room 2. Digging through the small rocks and mortar which composed the floor of Room 1, a sealed entrance was disclosed under the edge of the floor of Room 2. To the south of this entrance was solid masonry, but the floor and walls extended beyond. The floor, which was covered by large and small rocks laid in hard mortar, reached at least to a point in line with the south wall of Room 1. The unplastered roof conformed to the line of the floors in Rooms 1, 2, and 3, and was of very crude masonry with large pieces of mortar and rocks projecting. Yet the walls were plastered with some care. The floor was also smoothly plastered and was colored black. The walls were built on this plastered floor, and while a few pieces of charred wood were found, they showed no trace of fire.

In the south end of this room, fragments of human bones were found in the mortar between the first and second strata of rocks above the floor. This end was sealed up with heavy rocks laid in thick plaster. The wall was crude, neither smoothed nor plastered; its north face was in line with the south edge of the floor in the entrance between Rooms 1 and 2. It is highly probable that the south end of the room was filled up, and that exit was made through the roof to the room above.

The room was seven feet two inches in length, three feet nine inches wide; and its height varied so that in its southern section it was two feet six inches, and at the opposite end two feet eleven inches.

Within this room were scattered a portion of the remains of three skeletons which are designated as 17, 18, and 19. Some of the bones were broken, and in a few cases some

were still articulated. Plate 14, *b*, gives a very good idea of the shape of the vault, the burial conditions, and the specimens found in this vault.

**BURIAL VAULT.** The floor in the north half of Room 8 was raised by the addition of three large rocks covered with mortar — the rocks themselves resting upon the floor of Room 8. These served as a covering for a burial vault built through the floor of the room. It was irregular in shape, the north end of the floor being about seven and one-half inches higher than the south end. Its walls and floors were roughly plastered. This vault was of varying dimensions, but was on an average two feet wide (east and west) and three feet ten inches long; the depth was one foot ten inches. It was located in the northeast corner of Room 8.

Within this vault there was a bunched (bundle) burial, Skeleton 20, the bones of which were much crushed and broken. There seemed to be about one-quarter of an adult skeleton. Parts of the following bones were present: Skull, ulna, radius, finger and toe bones, humerus, clavicle, patella.

#### ARTICLES FOUND.

##### *In Room 8.*

Pot 1: Small, flat-bottomed red bowl; found with the bunched burial Skeleton 17; was resting on a femur and tibia. In it were a wrist bone, a toe bone, and a finger bone; from north wall — five feet four inches; from east wall — one foot ten inches.

Pot 2 (Plate 19, *d*): Small red pot with four hollow legs; found with Skeleton 18, between two pelvic bones; contained nothing; from north wall — five feet; from west wall — nine feet seven inches; slightly tipped to southeast.

Pot 3: Small red pot; found to north of Pot 2 about five inches, bowl up.

Pot 4 (Plate 18, *b*): Fine large pot, ornamented; contained nothing; from north wall — one foot nine inches; from east wall — one foot six inches.

Pot 5 (Plate 19, *e*): Pot stand; from north wall — two feet five inches; from east wall — eight inches.

Shell fragment: From north wall — two feet seven inches; from east wall — three inches.

Fragments of green and red paint: Found under Pot 4.

Small bead: Found under crushed skull.

Pot 6 (Plate 19, *f*): Small red pot, flat bottom; found inverted over Pot 7.

Pot 7: Small red pot, covered by Pot 6.

These two pots were found to the south of the sealed entrance, whose center was two inches from the line of the ends of the walls (east and west), and was fifteen inches from the west wall. Pot 7 rested on the floor, which continued into Room 8 and to the east, west, and south. They were covered with large rocks and mortar. They contained nothing at the time of excavation except a small amount, about a teaspoonful, of black dust-like material.

##### *In Burial Vault.*

Pot 8: Red bowl with low annular base; found covering Pot 9.

Pot 9 (Plate 19, *b*): Finely painted pitcher; found in extreme south end of vault.

Pot 10 (Plate 18, *f*): Finely ornamented bowl with four hollow legs; found resting on side with legs in contact with east wall, and in center of vault; glyph on bottom.

Long shell bead (Plate 35, *r*): Found near north end of vault.

Small jade bead (Plate 33, *m*): Found in north end of vault.

Two shell ornaments: One yellow material; other red on black material.

**Room 9.** Digging down about a foot through the vault below the floor of Room 8, a horizontal layer of slabs was encountered, which, upon examination, proved to be a portion of a room which is designated as Room 9. It was directly under Room 8, and its dimensions, except the height, which was about one foot greater, were practically the same.



This room, compared with Room 8, was of very crude masonry. Its walls were of rough stones, and in some places no attempt had been made to cover them with stucco. Its roof was formed by flat rocks placed upon the side walls and slightly projecting. Upon these were long, unplastered, flat slabs, not all lying in the same plane; frequently one was entirely above the one adjacent. The height of the roof varied from three feet six inches to four feet six inches, and its floor sloped to the south. The corners of the room were slightly curved.

The south end was formed by two large limestone slabs, a few small rocks, and mortar. It was evident that this end had been filled up by working from the inside and that the exit must have been through its roof, and through the sunken vault in Room 8. As proof of this fact, it was noticed that the roof of Room 9, under the vault, consisted of a single slab. It was an easy matter for us to dig away the mortar around this rock and remove it without destroying the walls of the vault in Room 8.

A very peculiar condition noticed was that in the room itself there were no skeletal remains, only pottery which was of a high class of ornamentation and design, a list of which is given below.

**BURIAL VAULT.** In the center of Room 9 and in contact with its east wall, an irregularly shaped hole had been dug through the floor. This was four feet three inches long, north and south, two feet seven inches wide, and two feet four inches in depth. On a level with the floor, this hole or sunken vault was covered with small flat rocks, not laid in mortar, but resting loosely in a sort of blackish earth. The vault was entirely filled with reddish black "earth," very small fragments of limestone, and a mixture of lime. The walls and the floor were unplastered, for the hole was simply dug into the masonry rubble.

Removing loose flat rocks which covered the opening of the vault and digging away the loose material below to a depth of one foot one inch, a stratum of bones was found. These bones were broken, and consisted of the femori, tibiae, fibula, and toe bones of Skeleton 21. They were found only in the northern half of the hole. Below, separated from them by seven inches of this same loose material, were found an entire skull, lower jaw, the two humeri, ulna, one radius, and a few finger bones, probably of this same skeleton. The skull was resting upon its base, about eight inches from the north wall.

Scattered throughout the vault were found about twenty sherds of at least six broken pots.

#### ARTICLES FOUND IN ROOM 9.

Pot 1 (Plate 18, a): Red, ornamented bowl with circular base; resting on floor; from north wall — one foot eleven inches; from west wall — two feet.

Pot 2 (Plate 18, e): Red, finely ornamented, four hollow legs; found resting on floor, in contact with Pot 1 and exactly west of it.

Pot 3 (Plate 18, c): Red brown, plain; four hollow legs; from north wall — three feet two inches; from west wall — two feet two inches.

Pot 4 (Plate 18, d): Red, plain; four hollow legs; found on floor, in contact with Pot 3 and to the south-east; from north wall — three feet six inches; from west wall — one foot four and one-half inches.

These pots were resting on a few loose rocks which lay in a sunken place in the floor.

Pot 5 (Plate 19, a): Finely incised pitcher, light brown; rested in the black earth and on a rock in the sunken part of the floor; from north wall — four feet three inches; from west wall — one foot one inch.

Pot 6 (Plate 19, c): Fine, red, ornamented vase; four hollow legs; in contact with Pot 7; from north wall — five feet four inches; from west wall — one foot four inches.

Pot 7 (Plate 20, f): Large shallow bowl; four hollow legs; to southeast of Pot 6; (Both Pots 6 and 7 rested in black earth); from north wall — five feet nine inches; from west wall — one foot eleven inches.



**Room 10.** This room was discovered when the rubble covering over the main building was removed. It had been constructed in this rubble in such a way that its south wall was formed partially by the north outside wall of the building.

It was five feet eleven inches in height, two feet six inches wide, and conforming to the wall of the building proper, its length varied, being at the floor five feet eight inches and at the ceiling six feet six inches. The room lay west of the center of the building.

The masonry was very crude. The floor was roughly covered with mortar, and the walls were of crudely worked stones held together by a concrete consisting of mortar and small stones. The roof was formed by small rocks (about two feet by eight inches by ten inches), resting on the top of the side walls, projected to support large cross slabs. Inside the room, these slabs were bare of stucco and over them was a covering of mortar and small rocks.

The floor of this room was covered with a loose reddish brown substance in which were found the skeletal remains and the specimens (Plate 14, *a*). Its thickness varied from three to six inches, being thickest in the center of the room.

**SKELETON 22.** In this room were found only a few human bones, all broken and in small fragments, scattered throughout the reddish brown stratum. The greater part of these fragments was found near Pot 3. A few pieces were found in Pots 2 and 3.

*Articles Found with Skeleton 22.*

Pot 1 (Plate 28, *g*): Shallow red bowl, ornamented; found resting on few small rocks, in contact with east wall; bottom of pot four inches from floor.

Pot 2 (Plate 28, *h*): Shallow red bowl, ornamented; distance from south wall to center of pot — two feet two inches; from west wall to rim — four inches.

Pot 3: Small red bowl, unornamented; distance from north wall to center of pot — one foot eight inches; from west wall — one foot two inches.

Pot 4: Red bowl, unornamented; found tilted at an angle of about forty-five degrees, in northeast corner of room, in contact with north and east walls.

R. E. M.

**Commentary on Building B.** Building B is the most historically significant building found at Holmul, not only on the basis of its architecture, but also because of the burials and their grave furniture. There are four major periods shown.

The first comprises the construction of the original pyramid, a burial mound. Room 9 and its vault were constructed within, and the burial of Skeleton 21 was made. The surface of the mound was nicely floored and some sort of structure was erected, the remains of which are shown by the lower façade, south of Room 1. Subsequently, this building was partially sealed to construct Room 8 and its vault, which held respectively Skeletons 17, 18, 19, and 20. The doors in the façade were filled in the course of this sealing. Lastly, the temple comprising Rooms 1, 2, and 3 was erected.<sup>1</sup>

The second period saw the building of the addition to the substructure and the construction of Room 7, wherein was buried Skeleton 16. Probably as a part of this activity, Room 4 was added to the original temple and the door cut through the north wall of Room 3.

The third period of the history of Building B consisted of its conversion into a mausoleum. This falls into four phases: first, the construction of Room 4a, the narrow vault built in the fill of Room 4, and the disposal of Skeleton 15. In connection with this burial, Room 3 was doubtless filled and sealed and the two pots inserted in the fill. The remaining two rooms were used, unquestionably, as a sort of chapel like Room 9, where the

<sup>1</sup> Cf. Merwin's data (p. 37). Therefore his statement (p. 20) that Vaults 8 and 9 were built after Rooms 1-3 seems untenable. There is, however, no doubt that these vaults contained the earliest burials in Building B.

burial was contained in a vault in the floor. The second phase of this third period takes in the original burials in Room 2, Skeletons 13 and 14, and the third phase begins with the interment of Skeleton 5 (12) and its disturbance of the former occupants of Room 2. At about the same time Skeletons 1, 2, and 6 were stretched out through the door between Rooms 1 and 2 and over the legs of Skeleton 5. They were covered up with mortar, and, in all probability, Skeleton 10 was interred above them. Apparently, Rooms 1 and 2 were not completely sealed, for as the fourth phase of the burying in Building B, we find Skeleton 9 set in the earlier corner of Room 2, and disturbing 10. With this final burial the filling of Rooms 1 and 2 was completed and the outer doors of the temple were sealed.

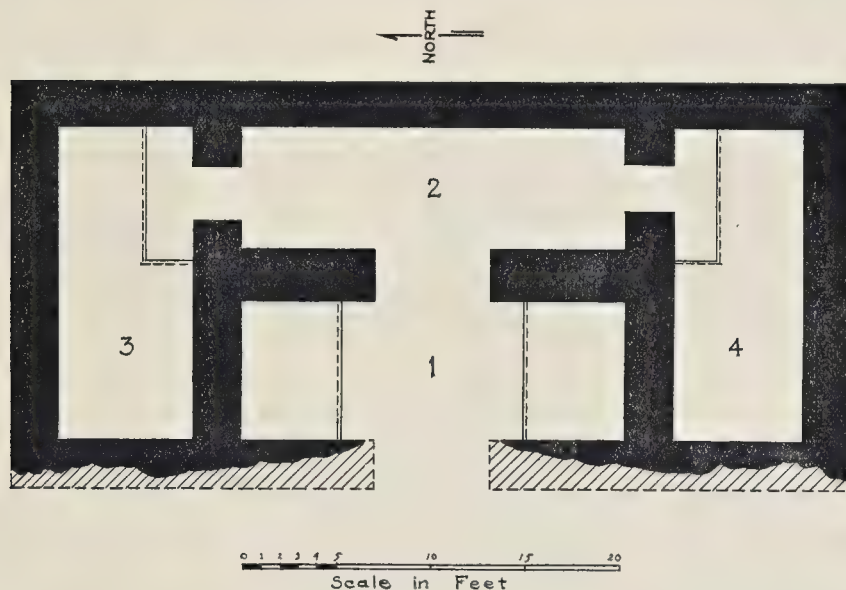


FIG. 17. Building C, Group II: plan

The fourth period was that of the covering of Building B with a high rubble mound. At the north Room 10, a burial vault, was constructed in much the same manner as Room 7, and in it was placed Skeleton 22. Above the roof of the original building the foundation deposits were laid.<sup>1</sup>

This combination of architectural changes and burials accompanied by funeral furniture is exceedingly important. The historical significance of this find will be dealt with in the sections on architecture, pottery, and the other phases of material culture.

G. C. V.

#### BUILDING C

Little of importance was noted after excavation of this four-room building except the great amount of floor space (Fig. 17).

<sup>1</sup> Ricketson 1928, *a*, p. 58, describes a somewhat similar situation at Uaxactun.

In the south part of Room 2, near the door leading to Room 1, was found on the floor a stratum of rocks about four inches thick, covering an area of about two square feet. The fragments of two pots of plain ware were discovered in this mass.

R. E. M.

Building C, a four-room domiciliary structure, facing west, was wedged in beside the west face of Building A on a level with the west plaza of its substructure. A doorway six feet wide led into the center of Room 1. On each side of the door a bench occupied the floor for the entire width of the room and to within a little less than two feet of the door. Another door of the same size, exactly opposite, led into a sort of hall, Room 2. The wall between Rooms 1 and 2 was thickened to support the weight of the two vault springs,

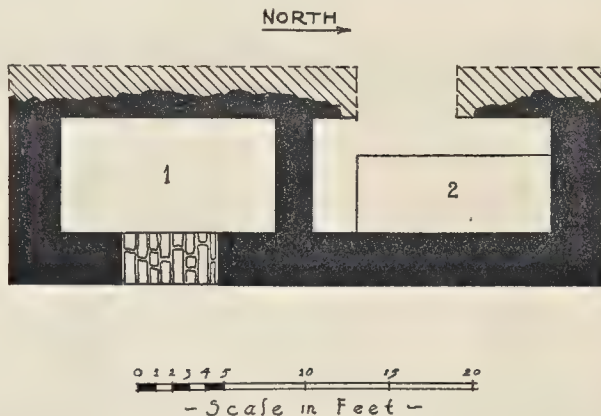


FIG. 18. Building D, Group II: plan

but, although the walls were uniformly eight feet high, there was no indication of the height of the arch, nor of the point where the spring began.

Room 2 opened at either end into two identical chambers, 3 and 4, whose long axes ran east and west at right angles to the other rooms. The floors of these two rooms except for a small space in front of either door were entirely covered by benches. These, like all in this building, ranged from two to two feet three inches high and were built of stones of various sizes, well plastered, the upper edges of the benches terminating in projecting copings.

The general proportion and arrangement of the rooms in Building C recall Buildings C and E in Group I; the narrow walls, the relatively wide rooms, the use of benches, and the eight-foot-plus wall height are all points in common among the three structures.

G. C. V.

#### BUILDING D

Building D (Fig. 18) was a small house in the southwest corner of the acropolis with its long axis north and south. It had two rooms, each with its separate door. According to Merwin's notes, the mound stood twenty feet eight inches; subtracting the seven feet of remaining wall height, the platform must have been almost fourteen feet high. The



northern chamber, Room 2, faced west, and had a crude bench taking up most of the floor space. The southern room gave to the east. Its door had been sealed with stones and plaster and the whole room filled up. Room 2, apparently, had not been thus treated, although no wall in the building stood over seven feet high, despite a thickness of nearly four feet.

Building D, from its general room proportions, seems comparable to Building C. Both, from the descriptions in the notes, may have been partially razed, since the presence of fallen vaults was not noted in regard to either structure.

G. C. V.

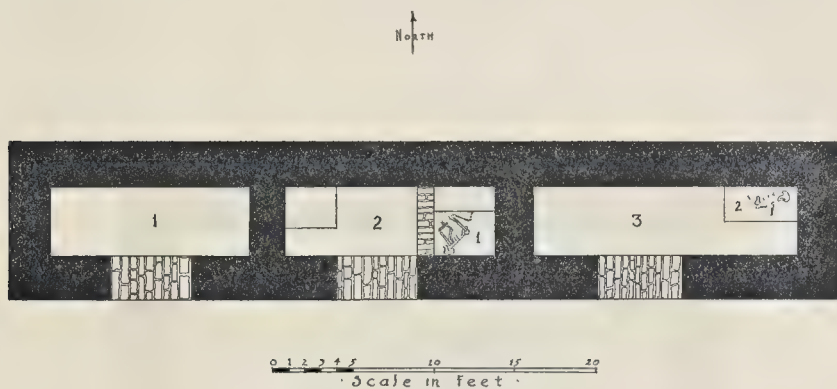


FIG. 19. Building E, Group II: plan

#### BUILDING E

This building (Fig. 19) contained two burials, and following the usual custom, its outside entrances were sealed with masonry, and the entire structure then covered with rubble (Plate 15, *a*).

Room 1 contained no burial; in each of the other two was found one.

In the east end of Room 2, in a portion of the room sealed up with fairly well-laid masonry, forming a small vault, was a single burial (Plate 15, *b*). This skeleton was not found directly upon the floor of the room, but upon a sort of crude platform, seven inches high, built directly upon the floor. This bench was formed of irregular rocks, topped by a plaster coating about one-half to one inch thick. The skeleton was in a poor state of preservation, due to the falling in of the roof of the building, and also to the fact that the roots of a large tree passed through it. It was found resting on its left side and was that of either a youth or woman.

The following articles, not worthy of description here, were disclosed:

- Fragment of a bone bead.
- Crude terra cotta figurine. (Plate 32, *ee*)
- Clay ball.
- Rough flint celt.

In the northeast corner of Room 3 on a crude bench were found a portion of a human skull and some long bones. As this burial was only six inches from the present surface



of the soil and was disturbed by tree roots, the skeleton was almost destroyed. It seemed to be that of a youth, flexed burial, with its face pointing south. No specimens were found with it.

R. E. M.

Building E stretched along the northwest corner of the plaza. Its three rooms had separate doors which opened southward on two low steps to the plaza. At the north the platform ended on the edge of the plateau. The three rooms were as narrow as those in Building A. The thin walls, however, produce a very different effect on the ground plan.

The sealing of the rooms and the apparent absence of fallen vault stones, coupled with the rubble covering over the dismantled structure, indicated that Building E had

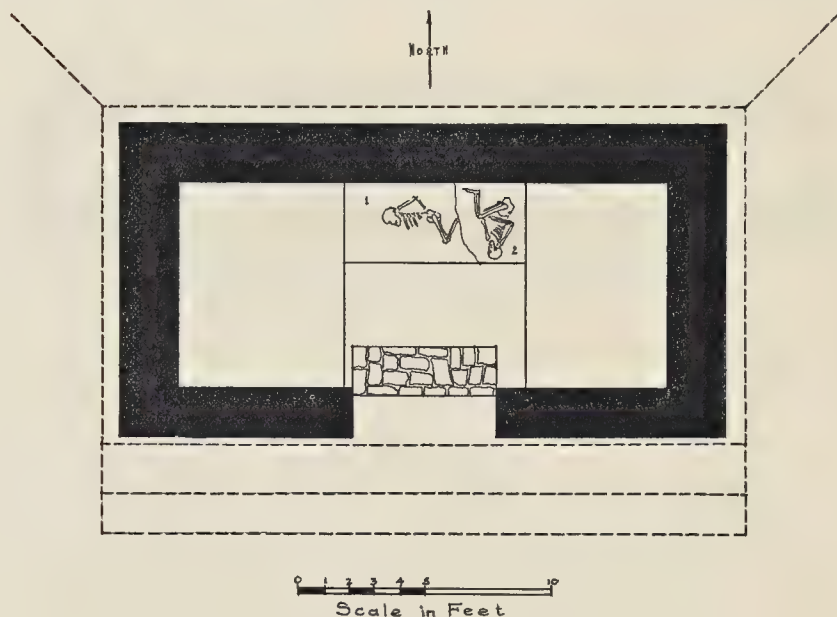


FIG. 20. Building F, Group II: plan

been converted into a tomb. The fact that Skeleton 1 was buried on the floor of Room 2, and Skeleton 2 six inches below the surface, shows that the structure may have been used for mortuary purposes at different times. The state of this building gives considerable evidence that Building D had been prepared for use as a mortuary chamber but never utilized.

G. C. V.

#### BUILDING F

The entrance to this building also was sealed with masonry after an interment had been made, and the whole covered with rubble to form a burial mound. Figures 20 and 21 show this very clearly. The method of sealing, however, differed from that used in the

other buildings, in that the masonry had been constructed inside the room and came in contact with the inner wall of the entrance (Plate 16, *a*). On the substructure in front of the building were two well-defined stone steps. Behind the sealing of masonry, this single-roomed building was found to be entirely filled with stone and lime mortar. Beneath this filling there were two benches, one at either end of the room, almost covering the floor space.

Covered and partially crushed by the rubble was a burial, Skeleton 1, on a crude, low bench (Plate 16, *b*). It was probably that of a youth resting on its right side, with the legs flexed. Directly upon the floor, near the skeleton, was a mass of black material, probably wood ashes and earth, which was perhaps one to three inches thick and contained several sherds of plain pots.

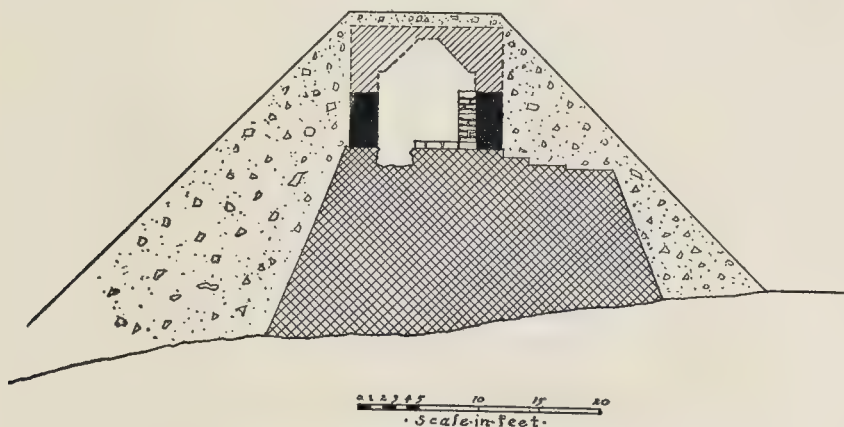


FIG. 21. Building F, Group II: section

Skeleton 2 was found in a crudely dug hole in the floor at the feet of Skeleton 1, and at the edge of the bench in the east end of the room. This hole, unplastered, but hollowed out in the floor rubble, was one foot eight inches deep and about two feet six inches in diameter. Its floor had been rather carefully plastered. The skeleton was covered by a mass of rubble. It was that of a youth, in a poor state of preservation, resting upon its left side. A fragment of obsidian knife was found among its right toe bones.

R. E. M.

Building F belongs to the domiciliary group of buildings, as the eight-foot width, the thin walls, and the benches attest.

Since the body is usually laid on the floor in such burials, it is possible that Skeleton 2 was buried after Skeleton 1. The more logical method of reasoning, however, would suggest the interment of Skeleton 2 as anterior. The reconstruction of a house into a pyramidal tomb is a characteristic of Group II, since Buildings F, B, and E showed direct interments, and Building D seemed to have been prepared for such a use. In Group I a natural disintegration of the buildings was observed, but not this type of reconstruction.

G. C. V.

## BUILDING G

Building G (Fig. 8) was a long low mound, closing in the west side of the plaza between Buildings D and E. It was a mass of rocks, earth, and lime, and was more in the nature of a wall than a building. Its height varied from two and one-half to four feet and its length was one hundred and fifty-six feet. A sort of gap or gateway twelve feet wide occurred between the end of this wall and Building E.

G. C. V.

## COMMENTARY ON GROUP II

In Group I we recognized four types of architecture:

1. Elongated Buildings with long, narrow, high rooms like Buildings A and B. (Figs. 2, 3, 4.)
2. Domiciliary Structures like Buildings C and E. (Figs. 5, 6.)
3. Pyramids like Building D. (Fig. 1.)
4. Burial Mounds like Structure F. (Fig. 7.)

Group II presented the same general classes but with certain significant differences:

1. Elongated structures were represented by Building A, which differed from the Group I examples in the squatness of its vaults, the massiveness of its substructure, and its masked panels. (Figs. 9, 10, 11.)
2. Domiciliary structures fell into three groups.
  - a. Structures with coördinated plan like Building C, which seems to have been crowded into the general plan after the other buildings had been constructed and has its counterpart in Buildings C and E of Group I. (Fig. 17.)
  - b. Simple structures similar to C in width but different in plan, Buildings D and F. (Figs. 18, 20, 21.)
  - c. Structures with a single rank of several narrow rooms, such as Building E. (Fig. 19.)
3. Pyramids might be represented by the substructures of Buildings A and B. Since Building D of Group I was not excavated, no information exists on the structure supporting it. (Figs. 10, 13.)
4. Burial structures in the form of Building F, Group I, did not exist. The original form of Building B might be so considered. The more common type was the modification of an existing building, like B, D, E, or F, by sealing the doors and covering the whole structure with a rubble mound.
5. A fifth type of architecture was found, the temple, as exemplified by Building B. (Figs. 12-16.)

ROOM TABLE

Building	Wall Thickness	Room Width	Room Length	Wall Height	Vault Height
A .....	3:6-8:3	3-5	15:9-13	7-7:6	2:6-3:6
B, 1-3 .....	1:6	1:9-4:2	12:9-15:6	5:6-6:6	2:6-3:6
B, 4 .....	1:6	7:3	12:6	7:6	3
C .....	2:6	6:6-7:3	16:6-20	8 +	....
D .....	4	7	12:11-13:5	7 +	....
E .....	2:6	4:3	12:3-16:3	6 +	....
F .....	2:6	8:2	18	7 +	....

Working on a basis of room proportions, Rooms 1-3 of Building B connected with Building A. Possibly Building E was of this same period. Room 4 of Building B resembled more closely Buildings D, F, and C. Yet Building C differed in three respects from B and F. It was more complex in ground plan, tying with Buildings C and E of Group I; it was not made into a burial mound like Buildings D, E, and F of Group II; and finally it seems, on the basis of the ground plan of the entire group, to have been the last building erected in the plaza (Fig. 8).

Therefore, according to the four building periods of Building B, the edifices in Groups I and II seem to fall into the following sequence:

- I. Original Burial Mound, Building B, Group II.
- II. Building B, Rooms 1-3; Building A; Building E. Group II.
- II, Late. Buildings A and B, Group I, narrow rooms but high vaults; Building D, Group II.
- III. Room 4, Building B; Buildings F and D. Group II.
- IV. Covering Pyramid, Building B; Covering Pyramids, Buildings D, E, and F. Group II.
- V. Building C, Group II; Buildings C and E, and Burial Structure, F, Group I.

G. C. V.



### GROUP III AND RUIN X

Group III was a complex of buildings about which the notes give very little information. The maps, moreover, although reasonably complete, are confusing as to direction, so that this group cannot be put on a general plan of the site.

G. C. V.

#### BUILDING A

There seems to have been a plaza, like those of Groups I and II, with a high mound on the eastern side dominating a series of smaller structures. On the northern side of this

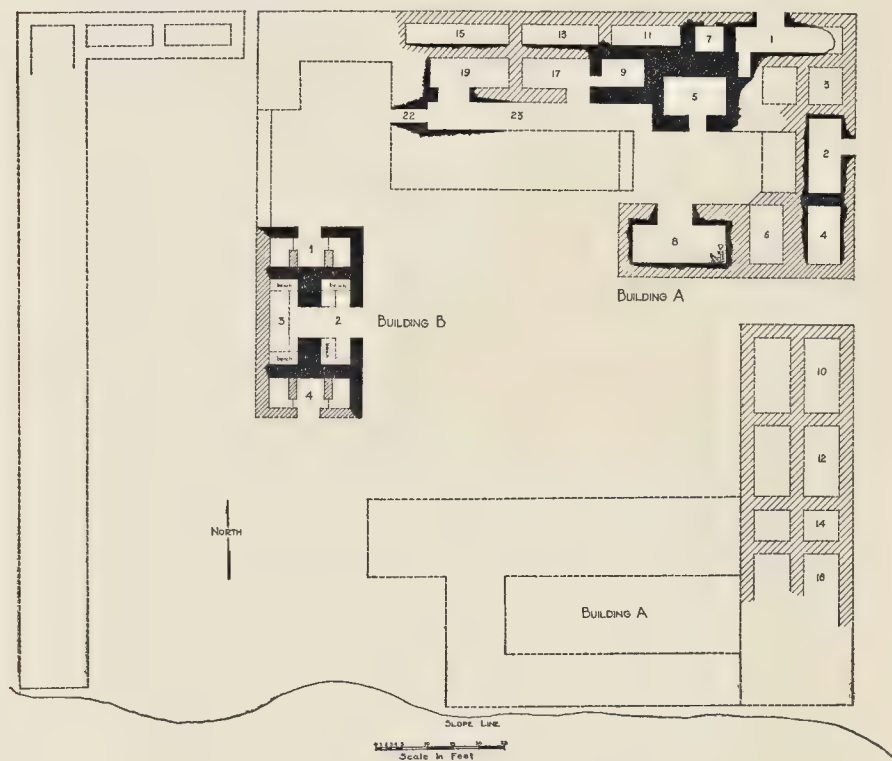


FIG. 22. Group III, Buildings A and B: plan

plaza there was a maze of rooms, Building A (Fig. 22), all of which had domiciliary dimensions and were equipped with benches. These rooms almost completely enclosed a smaller court or patio. It is possible to show a section of Room 5 (Fig. 25, *t*) whose dimensions approximate quite well the form of the domiciliary structures studied in Groups I and II. Some of the rooms had been sealed and used as burial chambers.

In Room 8, the bones of a skeleton were found on a bench at the east end, lying in limey earth, among some good sized rocks. Unfortunately, they had been disturbed by the workmen, so that it was impossible to get their positions with relation to each other. About thirty potsherds were discovered lying among these bones, and in Room 11 there were about fifty more.

G. C. V.

#### BUILDING B

This was a four-room structure, set in the patio of Building A (Fig. 22). It comprised two center rooms which were parallel and opened off each other, and two end rooms with exterior doors, giving egress to the north and south respectively. There were benches in

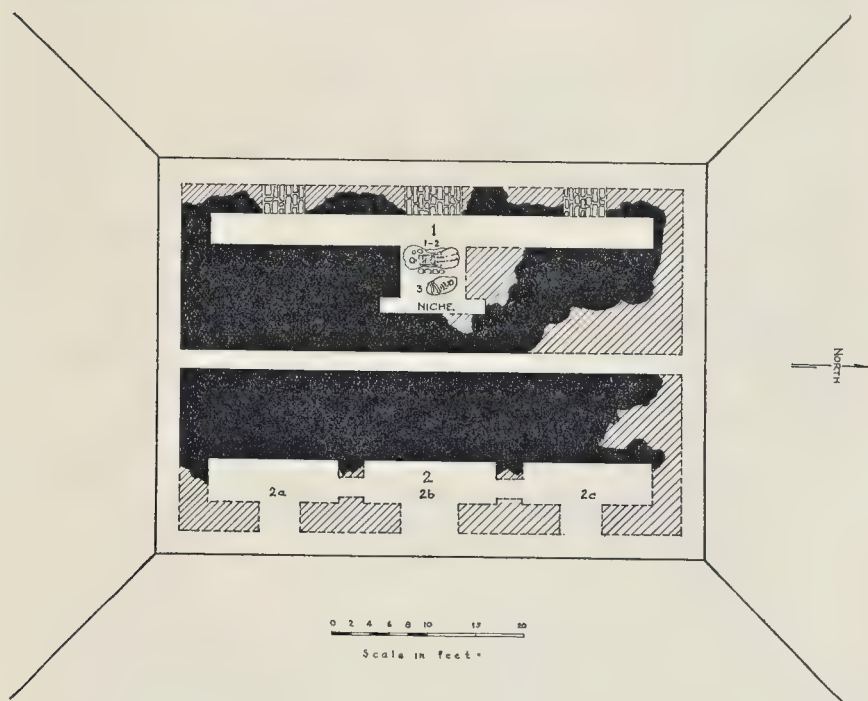


FIG. 23. Ruin X: plan

every room, and in each of the end rooms were two narrow blocks of masonry. In Room 1, one of these blocks extended to the roof. Their purpose, apparently, was to define the benches, which in this room were depressed below the level of the floor. The plan of the building recalls those of Building C, Group I, and Building C, Group II (Figs. 4, 17).

In Room 1 two flint knives or spear heads were found on the floor, just inside the door, and in Room 2 there were about thirty potsherds scattered on the floor and benches. Also in Room 2 were the base of a brasero with perforations in the floor and wall (Plate 31, *c*), one piece of perforated jade (Plate 32, *s*), and two pieces of bone, probably human.

About one hundred and twenty-five yards west of the northwest corner of Group III was a flat-topped mound, perhaps twenty-five feet square at base. There had been no building on this mound. To the east and about twenty feet from the base, were the remains of two unsculptured stelae. The one to the south probably had been about twelve feet high, but at the time of excavation was seven feet high, three feet wide, and one foot ten inches thick. Of the other, which was about the same size, there were approximately three feet still standing. There also was an unsculptured stela, fallen and broken, found at the south side of another nearby mound.

Group III has not been studied sufficiently to permit comparing it in great detail with the other complexes at Holmul. Building A, however, which suggests the Monjas type of ground plan so common in other places, is a new form of structure at this site.

G. C. V.

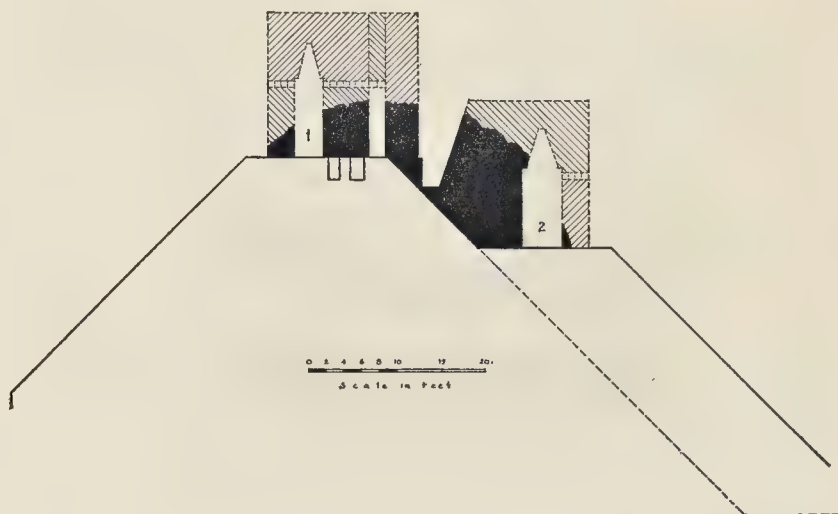


FIG. 24. Ruin X: section

#### RUIN X

Ruin X, a unit structure, one hundred yards east of Group I but having no direct connection with it, proved to be very interesting after the débris had been removed. The building itself was in such a poor state of preservation that only a small portion above the floor level was intact, just sufficient to give accurate measurements as far as the room arrangement was concerned.

Originally, there had been a single-room building (Room 1) constructed upon a steep-faced pyramidal substructure about forty feet high (Figs. 23, 24). This long corridor-like room had four entrances, three on the west side, the other on the east. The central doorway on the west side was six feet wide, being one foot six inches wider than the other two on this side. The eastern entrance to this first building was seven feet three inches, making it the widest. The western wall of the room was three feet two inches thick, while the eastern wall was about two feet six inches greater.



Later, but as a distinct structure, was added the building designated in the plan as Room 2. This was done, first, by sealing the eastern entrance of Room 1 with a solid wall of concrete three feet eleven inches in thickness, built against the entire east wall of the building, but set back from the wall line at the entrance, forming small niches at either side of the door. It was impossible to determine whether or not these niches extended higher than the door lintel. Next, destroying the line of the east side of the original sub-structure, a building the same length as the first one had been constructed on a lower level. It differed from the other in that it consisted of a single row of three rooms, each with an entrance to the east.<sup>1</sup> There is no evidence that the upper room, however, had been really three rooms with partition walls between them. The east exterior wall of this portion, Room 2, was vertical, but the west wall where it had joined the original sub-structure sloped in such a way as to be practically in the same plane as the west wall of the vault.

Burials were discovered in the upper or original room only, and following the usual custom found here, the entrances to the room had been sealed up. The western doorways were filled up with well-laid masonry so that the wall presented a continuous appearance, while the eastern entrance was sealed, leaving the peculiar niches for which no reason can be ascertained.

As has been stated above, the three doorways of Room 1 had been sealed, and it was noticed that from Doorway 1 and the entrance, leading off to the east, the floor had been covered with rocks and mortar, roughly thrown in. It is probable that this rough rubble completely filled this portion of the room and the doorway, but a large Sapodilla tree (four feet six inches in diameter) had very much disarranged things.

Immediately covering the floor, from the line of the east wall of Room 1 into the entrance, A, was a black-colored stratum of ashes, charred wood, rocks, and lime. This stratum was about one inch thick at the west end of the entrance, but increased gradually, until at the east end it was six inches thick. The floor showed evidence of rather intense heat, and the walls, although showing slight signs of the action of fire, had probably been protected by the plaster which had since fallen off.

It was noticed in removing the black stratum from the floor of the entrance, A, that the plaster was slightly broken in places and small holes were seen in the rocks under the floor. Investigating at the west end, the grave of Skeletons 1 and 2 was found.

A very crude vault had been built through the floor (Plate 17). At the bottom, for a distance of about eighteen inches, the sides had been walled up by rather small unworked slabs of stones, and in a few places, i. e. over the north half, a roof had been made of stone slabs resting upon them.

On this roof was a stratum of concrete which reached to the top of the floor. The concrete was not solid like that under the other parts of the floor, but less mortar had been used and it was filled with many holes. In the vault, below the level of the roof, there were loose earth, lime, and small rocks, the latter showing evidences of fire.

The floor was larger at the north and south ends of the vault, thus making room for Pot 1 at the south end, and Pots 2 and 3 and Skeleton 2 at the north.

**Skeleton 1.** This skeleton of a youth was buried horizontally, the legs straight and the arms at the side, with the skull resting on its back (Plate 17). The lower parts of the legs were covered with lime mortar and under them was a stratum of yellow material (similar to yellow material found with Skeleton 1, Structure F, Group I), which must have been the decay of a fabric wrapping. Underneath this stratum were rocks and mortar, making a crude floor to the vault. The femora lay in earthy material, and on the

<sup>1</sup> The middle room connected internally with the other two by doors in its north and south partitions. — G. C. V.



yellow stratum, but the bottom of the vault was covered with fine ashes, earth, and lime, the last two showing evidence of fire. The rest of the skeleton was in the same sort of stratification as the femori. The skull was badly crushed and its lower jaw was missing.

#### ARTICLES FOUND WITH SKELETON 1.

Pot 1: Shallow red bowl, formerly had three legs, peculiar design in center; found to the left of lower legs and over left tibia and fibula.

Pot 2: Large bowl, plain grey ware slipped on the entire interior and on the exterior of the wall; found inverted over Pot 3, at left of skull.

Pot 3 (Plate 30, *b* and *d*): Long, cylindrical red vase, fine design; found at left of skull under Pot 2. Limestone spindle whorl: Found under right tibia, four inches from distal end.

Yellow material: Found between tibiae four inches from distal end.

Fragment of obsidian knife: Found at left of skull.

Charred wood: Found in small pieces through vault.

About twenty-five potsherds: Found in vault; some of fine pots.

**Skeleton 2.** Skeleton 2 was that of a youth. It was flexed and buried in the south end of the vault above Skeleton 1. The pelvis was on a lower level than the remainder of the skeleton. The right humerus was separated from the right humerus of Skeleton 1 by a six inch stratum of limey earth, while the pelvis was separated from the ribs of Skeleton 1 by a two inch stratum of yellowish earthy lime. All of Skeleton 2 rested on about a one-half inch to one and one-half inch stratum of yellow material, probably decayed burial covering of a woven fabric.

A lower jaw was found between the humeri, resting on the ribs, but no cranium was located. It may be that the skull was missing, and that the lower jaw belonged to Skeleton 1. None of the bones of Skeleton 1 were disarranged; only the skull was crushed, and this must have been done when Skeleton 2 was buried.

#### ARTICLES FOUND WITH SKELETON 2.

Worked bird bone: Found among upper ribs.

Flint knife or spear point: Found near toe bones.

**Skeleton 3.** This burial was also made in the floor. A large hole had been excavated and a part of it was portioned off by limestone slabs, forming a vault for the burial. This vault was separated from that containing Skeletons 1 and 2 by limestone slabs and concrete, the two graves being not less than eleven inches apart at the closest point.

The dimensions of the vault were: north and south, two feet six inches; east and west, one foot eight inches; depth of bottom of vault below original floor, two feet six inches (or same level as that of Skeletons 1 and 2).

This skeleton of an adult was in a very poor state of preservation. The crushed skull rested on its right side, the line of vertebrae curved to conform to the vault, and the legs were flexed.

Surrounding the bones was a stratum of earthy lime about one-half inch in thickness, but under them, covering the floor of the vault, was an earthy, limey, yellowish stratum, one inch to three inches thick.

#### ARTICLES FOUND WITH SKELETON 3.

Small piece of obsidian flake: Found in east part of vault, one foot six inches below floor in black soil.

Charred wood: Found throughout vault.

R. E. M.

**Stela and Altar.** About a hundred feet to the east of this ruin and opposite the central entrance of the lower room, was a rough, uncarved stela, approximately twelve

feet in height. It was still standing, its lower end sunk in the rubble of the court. Eight inches from this stela, on the side toward Ruin X, was a rough unworked altar, five feet four inches in diameter and one foot seven inches thick.

G. C. V.

#### COMMENTARY ON GROUP III AND RUIN X

Analysis of these buildings is somewhat difficult, since the groups are set apart from the two main plazas and interpretation must be based on intellectual grounds instead of factual evidence.

ROOM TABLE

RUIN X	Wall Thickness	Room Width	Room Length	Wall Height	Vault Height
Room 1 .....	5:9	3:2	46:8	12+	..
Room 2 .....	3-5	4:8	13:1-15:9	9:2	4:6±
GROUP III					
Building B .....	3	6-7	18-22		
Building A					
Room 5 .....	3	7:8	12:4	6:6	4±
Room 1 .....	...	5	10:6		
Room 2 .....	...	6	14:6		
Room 4 .....	...	6:6	11:6		
Room 8 .....	...	7:7	18:6		
Room 9 .....	...	5:6	8:6		
Room 10 .....	...	7	14:6		
Room 12 .....	...	7	13:9		
Room 16 .....	...	7	12		

The walls of Room 1, Ruin X, stood to a height of twelve feet without a sign of an arch spring. This height and the thickness of the walls, together with the great length and narrowness of the room, suggest that it may have tied in with Buildings A and B in Group I. Room 2, although built later, seems likewise to belong to this same style of architecture. The massiveness of the back walls further increases the resemblance. Building X apparently remained open for a long time after its construction.

The pottery found with Skeleton 2 belongs to the same period as that in Building F, Group I, judged by the writer to be the latest at Holmul. (See section on pottery.) Consequently, Building X must have been used up to the latest period at Holmul, whatever may have been its time of original construction. We shall postpone further discussion until the section on architecture.

Buildings A and B of Group III, on the basis of their proportions, belong quite distinctively to the domiciliary residences of the Fifth Building Period, Buildings C and E of Group I, and C of Group II. The sealing up of rooms noted in Building A, Group III, is a characteristic of the Fourth and Fifth Periods according to the evidence yielded by the smaller structures in Group II.

G. C. V.

## ANALYSIS OF ARCHITECTURE, CERAMICS, AND MINOR OBJECTS

### ARCHITECTURE

A lack of technical training in architecture hampers most archaeologists, and the writer is no exception to this general rule. The actual composition of the buildings at Holmul differs in no way from the general principles of Maya construction laid down by Holmes<sup>1</sup> and Spinden,<sup>2</sup> so that it would be superfluous to introduce a description that is far better presented by these two authorities. It seems better to confine our appraisal of Holmul architectonics to such points as might have potential archaeological and ethnological significance.

A study of the buildings reveals two methods of grouping them, the functional and the chronological. The functional method is based on a study of ground plans, while the chronological division is founded on the superposition and preposition of rooms (Building B, Group II), on the position of buildings within groups, and on structural details that give possible evidence of architectonic evolution. In most cases, natural forces have destroyed the exterior ornamentation of buildings that would otherwise have been highly useful in determining time and tribe. As a result, our study is confined to the skeletal structures as contained in the ground plans and room proportions.

The following table shows the distribution of the buildings in respect to time and to function.

	Period I	Period II	Period III	Period IV	Period V
Temples		II-B Rooms 1-3	II-B Room 4		
Ceremonial-Domiciliary Structures		II-A I-A * I-B * Ruin X *			I-B Room 6
Domiciliary Structures		II-E	II-F II-D		I-C, I-E II-C, III-A III-B
Burial Structures	Original Mound II-B containing Vaults 8 and 9		Vault 7, II-B Burials into II-B Rooms 1-4 †	Covering Pyramid II-B, Vault Room 10, Covering of Mounds II-D, II-E, II-F	I-F Burial into Building X
Unexcavated Mounds		Mound I-D			

\* Late in Period II.

† Late in Period III.

**Period I.** The original mound of Building B is considered the earliest structure at Holmul, not only because of its stratigraphical position, but also because of the pottery accompanying the burials. There is insufficient structural evidence to permit a com-

<sup>1</sup> Holmes, 1895 and 1897.

<sup>2</sup> Spinden, 1913.



parative evaluation of the building, which possibly had been filled in to form the burial vault, Room 8, and to support the temple comprising Rooms 1-3 (Figs. 12, 13, 14).

**Period II.** The second period of construction in Building B, Group II, which consisted of Rooms 1-3, seems to have been paralleled in other quarters at Holmul and the differentiation in types of building begins to take place.

Building B, Group II, is the only structure at Holmul that might be called a temple.<sup>1</sup> Its exterior was covered with plaster in which designs originally were carved, and the top of the foundation carried a broad cornice made of a single element (Plate 8). The ground plan of the interior includes three parallel rooms, of which Room 3 is too narrow to have served a utilitarian purpose. The walls, although thick in proportion to the width of the room, are not unduly so for Maya construction in general. The vaults, constructed of slabs stepped inward, are low in relation to the height of the walls. The plaster-covered exterior, composed of simple planes, seems to agree with the general architectural practice at Tikal,<sup>2</sup> and recalls especially the cornices of Temple E-VII-sub at Uaxactun. Similar ground plans are rare, since most buildings have longer rooms. The first floor of Structure 27 at Tikal has the only comparable roof proportions among the other Peten sites, but the ground plan and elevation are very different (Fig. 25: *a-d*).

Building A of Group II has a wall-vault proportion very similar to that of Building B, Rooms 1-3. The width of the rooms makes habitation conceivable. On the other hand, the massive thickness of the walls and the ground plan are not in the tradition of Building B, and its roof comb creates a further divergence. The large masked panels ranged around the sides of the substructure are unique at Holmul, and almost certainly contemporaneous with the structure above. The high wall-vault proportions of Buildings A and B of Group I suggest a later development of this type of architecture, since the general plan and the thickness of the walls are very similar (Figs. 2, 4). This group of buildings with long narrow rooms, often linked end to end, has been called ceremonial-domiciliary because, although the width of the rooms is too narrow to make habitation supportable, yet the ground plan leads more or less into structures that seem designed for habitation rather than ceremonial usage. The same proportions are repeated in a different ground plan when we examine Room 1, Building X (Figs. 23, 24). Building E, Group II, although practically destroyed, seems to repeat these general proportions in an unpretentious structure that may have been domiciliary (Fig. 19). The high mound, D, of Group I was not excavated, so that we cannot tell what kind of structure lies beneath, although one can imagine a temple of the same general character as Building B, Group II.

The façades of these buildings were too disintegrated to warrant searching comparisons on external characteristics. It is significant that traces of roof combs are found on such closely similar structures as Building A, Group II, and Buildings A and B, Group I. In this trait these edifices are in the Old Empire tradition of Tikal, Nakum, and Naranjo. The masked panels adorning the substructure of Building A, Group II (Fig. 11; Plates 4, 5), are unprecedented in their position, although we find them occurring, carved in plaster, at the "Proto-Maya" Temple E-VII-sub at Uaxactun. Such ornamentation, limited to plaster work on roof combs, seems to have its chief occurrence in the Peten cities. In the cities of northern Yucatan, however, one finds masks habitually used as ornaments on buildings. With the exception of anthropomorphic heads at Izamal and Nochuchic, masks with projecting noses are usually represented, albeit occasionally in

<sup>1</sup> That is in the comparative sense of the word, describing such structures as Temples I-V at Tikal, the Castillo at Chichen Itzá, the House of the Dwarf at Uxmal, or the Temple of the Sun at Palenque.

<sup>2</sup> The necessary bibliographical references to all sites mentioned in the text will be found in the Reference Index on pp. 104-105.



extreme conventionalization. On the other hand, Palenque has temples decorated with human faces.

The ground plans of Buildings A and B, Group I, and Building A, Group II, have no equivalent to the alignments of chains of parallel rooms so characteristic of Tikal and Nakum. It is, however, quite possible that there might be similar alignments covered up by later constructions or overlooked in the maze of buildings composing these sites. Stronger resemblances result from a comparison of the room sections of Holmul structures with those of buildings at other Maya sites. The attenuated rooms of Buildings A and B, Group I, and Room 1, Building X, have similar proportions to the cellae of Temples I, II, III, IV, and V at Tikal (Fig. 25, *k-o*). Room 2, the lower range of Building X, which in its room-section proportions occupies a position midway between the low vaults of Rooms 1-3 of Building B, Group II, and Building A of the same complex, and the high vaults of Buildings A and B of Group I, has parallels in the room sections at Temple A, Nakum, and Structures 6 and 30, Yaxchilan. Approaching less closely this vault form are chambers of buildings at Toniná and El Cayo, Chiapas.

Undue emphasis cannot be placed on the relation between these room proportions. The Tikal and Nakum temples appear entirely ceremonial in character, and not only their ground plans but also the elevations of their structures and pyramids place them in quite a different category from the rambling succession of rooms in the Holmul buildings which they resemble in vault proportions. No doubt, the presence of heavy roof combs necessitated thick walls, but such evidence cannot be adduced to mean that they were constructed during the same period. It is far more probable that within the substructures of the Tikal and Nakum buildings other structures are buried which really closely compare with some Holmul building such as Building B of Group II.

**Period III.** During this period, Room 4 of Building B, Group II, was constructed. It was wider than the rooms we have considered heretofore. Possibly contemporaneous are the simple domiciliary buildings, D and F, of the same group. Later in Period III, Building B was transformed into a burial vault. The situation becomes complicated at this point, since there are a number of burial phases associated with this period of construction, first the burials in the vault, Room 7 of Building B, then the low burials in Rooms 2 and 4, and finally the later group of burials in Rooms 1 and 2. We shall postpone the discussion of contrast in the rhythms of architectural and ceramic periods until the chapter on final conclusions.

The buildings associated with this period have simple ground plans and are wide enough to have been used for habitation. Room 4 of Building B fortunately retained its external details and ornament (Plates 8, *b*, and 9, *a*). This room is equipped with a broad medial cornice and resembles one of the small temples on the northern side of the square

*Key to Fig. 25 (p. 57)*

Low Narrow Vaults: *a*, Holmul, Building B, Group II, Rooms 1-3; *b*, Holmul, Building A, Group II, Room 1; *c*, Holmul, Building E, Group II, Room 1; *d*, Tikal, Structure 27, lowest tier. Intermediate Narrow Vaults: *e*, Yaxchilan, Structure 6; *f*, Holmul, Ruin X, Room 2; *g*, Nakum, Temple A; *h*, Yaxchilan, Structure 30; *i*, Toniná; *j*, El Cayo. High Narrow Vaults: *k*, Holmul, Building A, Group I, Room 2; *l*, Holmul, Building B, Group I, Room 3; *m*, Holmul, Ruin X, Room 1; *n*, Tikal, Temple II, Rooms 1 and 2; *o*, Tikal, Temple IV. Wide Vaults: *p*, Holmul, Building B, Group II, Room 4; *q*, Holmul, Building B, Group I, Room 6; *r*, Holmul, Building C, Group I, Room 1; *s*, Holmul, Building E, Group I, Room 1; *t*, Holmul, Building A, Group III, Room 5; *u*, Holmul, Building C, Group II, Room 1; *v*, Holmul, Building D, Group II, Room 1; *w*, Holmul, Building F, Group II, Room 1; *x*, Tikal, Structure 27, second and third tiers; *y*, Tikal, Palace of the 20 Chambers; *z*, Budsilhá; *aa*, Chancelá; *bb*, El Retiro; *cc*, Chichen Itzá, Temple of the Phalli; *dd*, Palenque, Temple of the Inscriptions; *ee*, Palenque, Temple of the Cross; *ff*, Uxmal, Governor's Palace; *gg*, Chichen Itzá, Temple of the Warriors; *hh*, Zayil; *ii*, Chacmultun, Building 2; *jj*, Chacmultun, Building 3, Room 10; *kk*, Chichen Itzá, Iglesia.

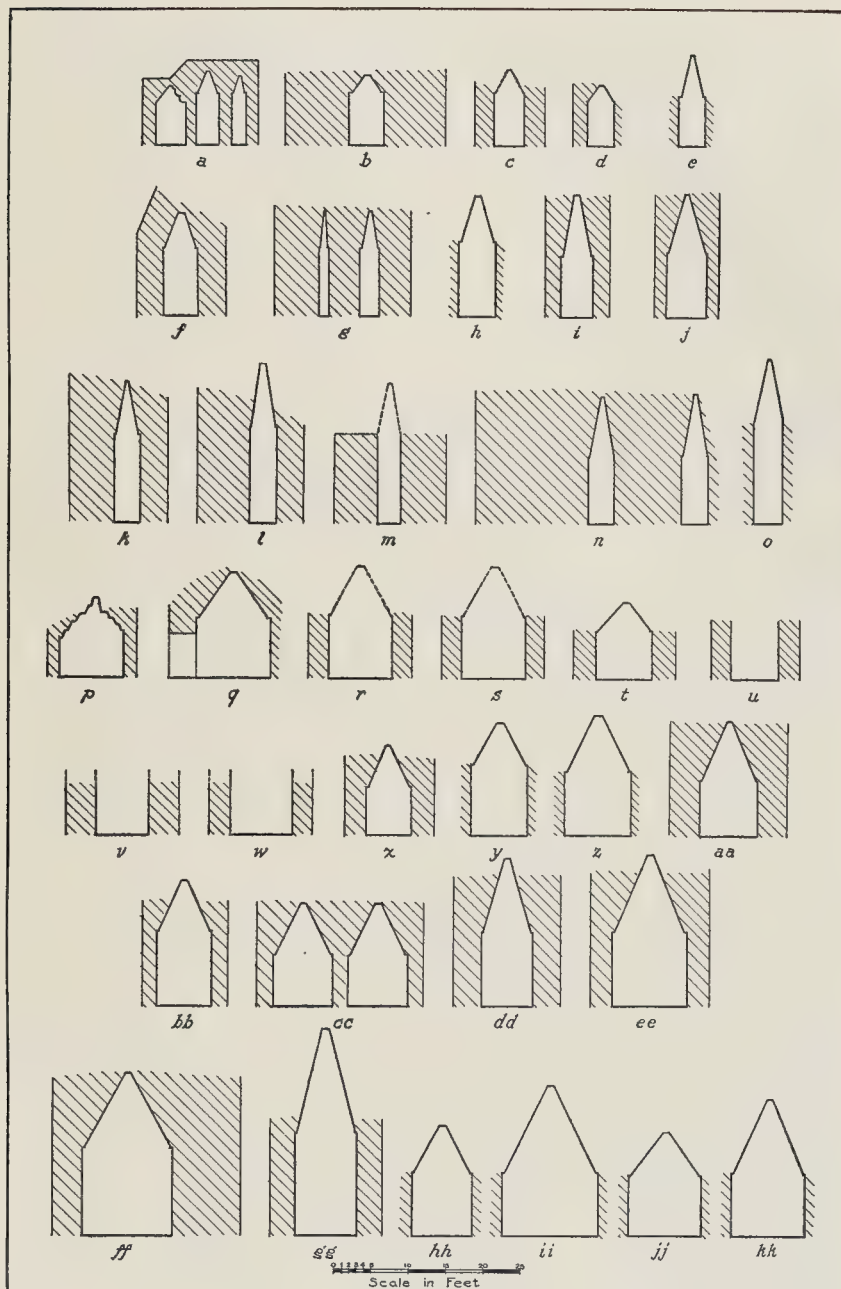


FIG. 25. Comparative vault sections of low, high, and wide vault rooms  
(For key, see opposite page)

at Tikal. The roof façade is adorned by three ornamental details carved in plaster. They represent, apparently, a development from a highly stylized serpent head to an extremely conventionalized representation of the mask itself. Perhaps this derivation is too fanciful, but a comparison with one of the masks at Temple E-VII-sub, Uaxactun, is revealing. The forehead of the Uaxactun mask becomes the upper ledge of the Holmul decoration, and the volutes over the eyes are transformed into the upper scrolls. The middle scrolls of the Holmul decoration are drawn from the ear plugs of the Uaxactun mask, and the lower represent the fangs. Eyes are shown by the depressions, and the tongue and possibly the end of the nose are represented by the curved bands pendant from the base of the design. A vague parallel to this type of ornament exists in masks of Nakum, and possibly of Tikal.

In the absence of adequate comparative material, similarities, when they do occur, assume great proportions. The three connections of Building B, Group II, with Temple E-VII-sub at Uaxactun, including the profuse use of plaster, the employment of broad single element cornices, and the decoration by a conventionalized mask, possibly derived from a Uaxactun prototype, must be handled with extreme caution.

The interior vaulting of Room 4, Building B, Group II, is characterized by an irregular stepping of the roofing stones (Fig. 25, *p*). A somewhat similar system occurs in Structure D, Nakum, and in Structure 60, Tikal. No trace remains of the vaulting of Buildings D and F, Group II, and the literature available to the writer reveals no comparable structures, doubtless owing to their insignificance and the difficulty of analyzing such small buildings without excavation.

**Period IV.** The fourth period of building at Holmul is marked by the covering of Building B, Group II, by another mound in which the burial vault, Room 10, was constructed. The erection of mounds over Buildings D, E, and F might also be assigned to the same epoch (Figs. 18-21). Except in respect to the site itself, this period has neither chronological nor ethnological importance, since the covering up of one pyramid or building by another has been observed in almost every portion of Middle America where mounds have been dissected. Yet the erection of these mounds might be said to mark the close of the architectural styles which governed the construction of Buildings A and B, Group I, Buildings A and B, Group II, and Building X.

**Period V.** The facts that Building C, Group II, had not been covered up by a mound and did not occupy a well-planned position in the group make it seem probable that it belongs to a later phase of construction than the four epochs previously considered (Fig. 17). Its relatively elaborate ground plan, coupled with the presence of interior benches, and the width of its rooms offer striking resemblances to Buildings C and E of Group I and Building B of Group III (Figs. 5, 6, 22). Since the complex structure of parallel rooms in Group III, called Building A, reveals similar room proportions and is unique at Holmul in its architectural composition, it appears logical also to include this structure in Period V (Fig. 22). Were it not for such associations, these domiciliary buildings would be assigned to previous periods. On the other hand, their developed ground plans give hints of evolution in construction.

The exteriors of these buildings had disintegrated too much to warrant comparison of their façades with those of other sites. At the present writing their ground plans, with the exception of Building A, Group III, are not paralleled in the material accessible for study. The rank and file of Maya domiciliary edifices consist of long lines of parallel rooms which do not exhibit the ingenious dovetailing of the typical Period V houses at Holmul. Building A, Group III, alone presents the distinctive plan of houses of the Monjas type.



When we consider the proportions of room widths to wall and vault heights, we find ourselves on familiar ground (Fig. 25, *p-kk*). It is possible to estimate from the few roofs found standing at Holmul the heights of the others, since all the rooms of this type have practically the same proportions. The wall height of seven to nine feet with a two to three foot thickness, the vault height of four to seven feet, and the room width of eight feet more or less, we find repeated in buildings with the Monjas type of ground plan at Tikal, Budsilha, Chancala, El Retiro, Palenque,<sup>1</sup> and in several sites throughout Yucatan.<sup>2</sup>

While these proportions may have had chronological significance in the early stages of Maya history, especially in respect to ceremonial buildings, their value as a time indicator tends completely to disappear once the erection of many-roomed domiciliary structures is developed.

Since Group III alone yielded a building of the Monjas type of ground plan, we might assume that this development occurred relatively late in Old Empire times, when Maya ingenuity turned to the problems of ornament and the disposition of rooms in a given area, after the problem had been solved of roofing a space wide enough to permit reasonably comfortable habitation. Yet the early dates at Tikal, where many of these buildings were, militate against such an assumption. It is unfortunate that we are unable to distinguish a ceremonial building of Period V, for it seems as if, from the evidence at Holmul, Nakum, and Tikal, the roof comb was first associated with such structures to give more space for decoration enriching their ceremonial importance. But there are no data as to when the development of the roof comb into a flying façade, as outlined by Spinden,<sup>3</sup> may be said to have taken place. It would be interesting to know when the flying façade was first associated with domiciliary structures. In our present study, as in the aesthetic history of so many different nations, we must seek the epitome of artistic developments in the most socially important practices. Thus, the implications of evolution shown by Temples I-V at Tikal, the Temple of the Inscriptions at Palenque, and the Castillo at Chichen Itzá are well borne out by the probable chronological position of these cities. On the other hand, such evidence of development is lacking when, for example, the presumably late Monjas at Uxmal is compared with the supposedly early Structure 27 at Tikal.

The dating of Holmul on architectural grounds, therefore, is difficult. We have three dated sites on which to base our comparisons — Nakum, Tikal, and Uaxactun — ranging as follows:

Uaxactun	8-14-10-13-5	to	10-3-0-0-0
Tikal	9-0-10-0-0-	to	10-2-0-0-0
Nakum	9-17-0-0-0-	to	10-1-0-0-0

The use of plaster-work, broad single element cornices, and the mask as a decoration offer more connections with Uaxactun, perhaps, than do the narrow rooms of the ceremonial domiciliary structures with Temples I-V at Tikal (Fig. 25, *k-o*). Moreover, only one building, A of Group III, resembled the Monjas type of ground plan found at Tikal. On this basis, it would be tempting to tie in the earlier buildings of Groups I-II at Holmul with the period between 8-14-10-13-5 and 9-0-0-0-0. The Group III buildings might then be assigned to a period after the later date.

<sup>1</sup> Palenque, Temple of the Inscription and Temple of the Cross.

<sup>2</sup> See, Uxmal, Governors Palace; Chichen Itzá, Iglesia, Temple of the Warriors, Temple of the Phalli; Chacmultun, Building 2, Building 3, Room 10; Zayil.

<sup>3</sup> Spinden, 1913, pp. 110-113.



However, until we have precise information on the association of stelæ with buildings, and until the correlation of Maya dates with Christian chronology is definitely decided, it is better to avoid such moot points. From the developmental point of view, the architecture of Holmul is probably Early Peten Maya and is of the period of the rise of the great "Old Empire" cities. Upon this point, an analysis of the ceramics will be of considerable utility.

G. C. V.

#### POTTERY VESSELS

The pottery found at Holmul is extremely important because of its chronological implications. There are two main groups of vessels, those which come from the burial chambers of Building B, Group II, and those which were found with the graves in Structure F, Group I, and Building X. The first group is susceptible to further subdivision on chronological grounds because of the different periods of interment.

The earliest burials were those in Rooms 8 and 9 of the original structure of Building B. Skeleton 21 in Room 9 must have been buried first, after which followed Skeleton 20 in the vault between the floor of Room 8 and the roof of Room 9. Then Skeletons 17, 18, and 19 were laid away in Room 8. Finally the vault was sealed and the temple composed of Rooms 1-3 was constructed.

The next phase of interment occurred when the burial vault, Room 7, was constructed to hold Skeleton No. 16. This tomb lay in a supplement to the substructure, made necessary by the addition of Room 4 to Rooms 1-3.

The conversion of Building B into a mortuary vault comprised a third burial period. It is possible to distinguish at least four episodes when burials were made. The first was the placing of Skeleton 15 in the Vault 4a made during the filling up of 4; the second was marked by the burial of Skeletons 13-14 on the floor of Room 2; the interment of Skeletons 5 and 10 which disturbed Nos. 13 and 14 indicated a third series of burials; and the fourth and last episode took place when Skeletons 1, 2, and 6 were entombed and when, after all the others, No. 9 was interred, disturbing No. 10. Finally the temple was walled up.

The fourth major burial period took place when Building B was covered by another mound and Skeleton 22 was laid away in Room 10, a vault constructed in the side of the new pyramid. Probably contemporaneous with this burial are those made into the smaller Group II structures which were mounded over, notably Skeletons 1 and 2 in Building E, and 1 and 2 in Building F.

During the fifth period of interment, which we shall discuss later in connection with the vessel forms, Skeletons 1 and 2 were buried in Building F, Group I, and 1-3 were interred in the sealed Room 1 of Building X. Perhaps of this same general period, but possibly later, were the inhumations in Building A, Group III.

These burials yielded a series of over ninety pottery vessels, which probably represents the cream of the ceramics made at Holmul. While this quantity gives a clear impression of the five ceramic periods, it is hardly great enough to classify the phases of a single epoch. The vessels were probably used for serving food and for ceremonial purposes, but storage pottery, such as makes up the mass of the sherds in débris heaps, is lacking. As most of the collections of Maya ceramics are composed of the more striking vessels from various localities, we can compare them directly with our selected group, and since stratigraphical excavations in the Maya area have been few and far between, and their results unpublished, the lack of great bodies of sherds from Holmul does not affect our analysis.

**Holmul I, the First Burial Period.** The burials of the first period yielded a group of vessels that we have designated as Holmul I. Since the consideration of the pottery necessitates technically descriptive terms, the vessels are listed again in the order used by Merwin but according to the technical terminology of the writer.

*With Skeleton 21.*

1. Polychrome lacquer bowl with annular base. (Plate 18, *a*)
2. Polychrome lacquer bowl with four cusped cascabel feet. (Plate 18, *e*)
3. Bowl, polished red slip, four cusped cascabel feet. (Plate 18, *c*)
4. Orange lacquer bowl, modified polychrome pattern, four cusped cascabel feet. (Plate 18, *d*)
5. Olla with spout, fine white brown slip incised. (Plate 19, *a*)
6. Orange lacquer vase, simple polychrome design, cusped lentoid feet. (Plate 19, *c*)

*With Skeleton 20.*

1. (Merwin's list, Room 8, No. 8). Red bowl, lacquer with incurved rim, annular base. (c-5648)<sup>1</sup>
2. (Merwin's list, Room 8, No. 9). Olla with spout, highly polished brown ware, gadrooned body covered with plaster over slip in green, pink, and red. (Plate 19, *b*)
3. (Merwin's list, Room 8, No. 10). Polychrome lacquer bowl with four cusped cascabel legs, parrot painted on white slip. (Plate 18, *f*)

*With Skeletons 17, 18, 19.*

1. Small red bowl with flat bottom. (c-5641)
2. Vase, red lacquer, four cusped cascabel legs. (Plate 19, *d*)
3. Deep red lacquer bowl, simple silhouette. (c-5643)
4. Polychrome lacquer bowl, composite silhouette with bevelled edge. (Plate 18, *b*)
5. Pot-stand, dull red ware. (Plate 19, *e*)
6. Small red lacquer ware pot with flat bottom. (Plate 19, *f*)
7. Large shallow bowl, polished red lacquer, four swollen cylinder legs. (Plate 20, *f*)

The pottery from Period I, yielded by the burials in Rooms 8 and 9, presents a number of distinctive features. Two clays have been used. One is of a porous, flaky composition which is slipped usually in a hard, closely integrated wash. This is called lacquer ware because of the contrast between the soft base clay and the hard slip. The other is made from a harder, more closely kneaded base clay over which a slip of similar composition but finer texture is spread. These vessels do not present such a difference between the slip and the base clay, and the burnish is not so bright. There is some variation, probably due to manipulation and to firing, for some of these vessels are red and others, like the spouted vessels, are of a brown-white color and have very thin walls. Vessels of such clays may have been imported, or else the clay may have been brought from outside to be shaped locally into the desired forms.

The vessel forms comprise five bowls with concave walls and slightly depressed bottoms, resting on four globular rattle feet with cusps. A sixth bowl is beaker-shaped and its four legs are pear-shaped. Another vessel, a flat plate, rests on four swollen cylinder legs. Two bowls, one of simple silhouette, the other with a concave wall, are supported by annular bases, and two other bowls of simple silhouette have no support at all. Two vessels are in the form of flat-bottomed dishes, two examples of ollas with spouts were found, and one pot-stand was recovered. A single bowl of composite silhouette, formed by separate body and wall elements, resembles the standard form for later periods, even to having a flange or bevel at the point where rim and body join.

Decoration is not particularly elaborate. Nine vessels, including the pot-stand, are undecorated save for the burnish of their red slips. One of the two vessels with spouts is

<sup>1</sup> The Peabody Museum catalogue number appears after each object not illustrated. The numbers of the illustrated specimens are listed on p. 106.

incised, the other faintly gadrooned. This latter specimen was covered afterwards with plaster on which rudimentary geometric patterns were traced in green, pink, and red. Three vessels are decorated by geometric patterns of the simplest character, painted in red and black, while the remaining three bowls have more complicated designs in the same colors. Two designs are highly conventionalized, one representing, perhaps, a treatment of the serpent motif, and the other consisting of parrots realistically painted in red and black upon a white field.

A glance at the illustrations of pottery from all periods at Holmul reveals that all save a few examples of these Period I vessels have little in common with those of succeeding periods. The lacquer ware composition of the vessels runs through all periods, probably because the same local clays were used by all the potters of the Holmul region. The bowl with the composite silhouette and bevel base and the swollen cylinder tetrapod support of the flat bowl are typical of the later periods. Variations of the conventionalized serpent design also embellish bowls of the later periods. The flat-bottomed dishes occur in all periods and are, apparently, a standard regional shape. While the pot-stand has been found among later Holmul pottery (Plate 19, *e* and *g*; Plate 26, *d*; and Plate 27, *e*), still it does not seem to be a really dominant Maya ceramic trait, and simple silhouette bowls are not distinctive enough to use as a chronological diagnostic. Yet the sum total of these resemblances is enough to ensure the derivation of the Holmul II-V pottery from the Holmul I material.

On the other hand, the presence of bowls with globular tetrapod supports, bowls with annular bases, and vessels with spouts, suggests affiliations with a ceramic group not of the various Maya traditions. The sub-floor material from Uaxactun does not appear to reveal this globular leg, although the form of the bowls proper might tie in to some extent with the Holmul Period I specimens.<sup>1</sup> At the Cerro Zapote in Salvador and at several other sites in the region, S. K. Lothrop has found bowls which, although differing in shape from the Holmul I pots, have tetrapod supports. These bowls are adorned by black lines painted on an orange field. In some cases the black has faded out as if by over-firing, and in some the patterns appear to have been made by the "lost color" process. The fact that sherds of the same ware were found under a deposit of volcanic ash argues for considerable antiquity. Other four-legged vessels in this same style, especially Numbers 30.0-3669, 3670, 2285, 3675, are exhibited in the American Museum of Natural History. Gamio recovered vessels, which apparently have four legs, from a cemetery at Salcája, in western Guatemala. Closer at hand, in northern British Honduras, occur bowls with four hollow cascabel legs, notably one at Mound 6, Santa Rita. Others were found in the southern Cayo district of western British Honduras by J. Eric Thompson (1931). There is some question in the writer's mind, however, as to whether these specimens are contemporaneous with those of Period I at Holmul, since such forms might have persisted on after their manufacture had been abandoned in the main centers. Going further afield, we find a tripod bowl with cusped cascabel legs coming from Nicaragua.<sup>2</sup> The pear-shaped legs of one of the tetrapod vessels also occur in tripod form in a zone running from Costa Rica<sup>3</sup> to Ecuador.<sup>4</sup> Yet the fact that these are tripod and not tetrapod supports renders them of little value as a connecting link between Holmul, Period I, and the South. In Costa Rica one finds four-legged vessel supports attached to animal effigy forms, which is only natural, and the particular range of this

<sup>1</sup> Vaillant, 1930, *b*, pp. 78-81.

<sup>2</sup> Lothrop, 1926, *a*, Fig. 111.

<sup>3</sup> Lothrop, 1927, *a*, Plates 193, 194.

<sup>4</sup> Jijón y Caamaño, 1914, Plates XXIII, XXIV; 1923, Plates CXIII, CXXVIII.



type extends north into the Pueblo area of the Southwest and into the Southern Mississippi Valley.<sup>1</sup>

Linné has made a study of the distribution of the tripod support of pottery vessels which he finds centers in northern Middle America and extends southward down the coast with fair consistency as far as Tucuman in the Argentine.<sup>2</sup> Implications of an early origin for this support are seen in its occurrence in the Middle Zacatenco periods of the Valley of Mexico. It was not, however, until the succeeding periods of Early, Intermediate, and Late Ticomán that the tripod came into general use.<sup>3</sup> Tello also finds the tripod support under early conditions at Recuay in Peru. In contrast to this distribution in time and space, it seems to be neither common nor early in Maya ceramics, since it is not found during the early periods at Uaxactun. Therefore, when we are confronted with an early occurrence of tetrapod support in the Maya area, as at Holmul and in Salvador, we are dealing with a very specialized phenomenon, first in respect to the number of the vessel legs, and second in respect to the rarity of either the tetrapod or tripod support in this section.

The bowls with annular supports have been found scattered over a wider area. Linné's distribution map (1929) gives an excellent idea of their extent.

In Mexico, however, the annular base is more common in late times. It is relatively rare in the Zacatenco and Ticomán periods and at Teotihuacán. Its peak of occurrence is in Aztec and central Vera Cruz ceramics, although it is known in western and northern Mexico. It is also found in the Valley of Oaxaca. Moving southward we find this method of support extremely common in Costa Rica, and fairly so in Panama and Ecuador. It is also abundant on the Peruvian coast.

The pot-stand is rare in Mexico. Linné reports having seen some labelled "Mexico" in the Musée Céramique de Sèvres, but they are unknown to the writer in the Mexican collections in the United States and Mexico.<sup>4</sup> Their chief occurrence is to the south, in Costa Rica, at Coclé, Panama, and possibly in Ecuador. The distribution of the pot-stand is linked very closely with that of the annular base. It seems in many cases that the idea of an annular base might have arisen from the concept of the pot-stand. Pot-stands have not been uncovered from the Early Cultures of the Valley of Mexico. Yet in the tombs discovered by J. Eric Thompson in the southern Cayo region, British Honduras, we find the pot-stand, the tetrapod bowl, and the annular base associated.

Vessels with spouts were recovered from Rooms 8 and 9. These too have a very wide distribution. Such forms are known from the Middle Mississippi and Arkansas region in the United States.<sup>5</sup> They occur scatteringly in north central Mexico,<sup>6</sup> but are more common in the Huasteca.<sup>7</sup> They are found associated with the Teotihuacán Culture in the Valley of Mexico, but not with the Aztec or the Early Cultures. They turn up again in the Valley of Oaxaca. Central and southern Vera Cruz yield few specimens of this type. Some were found by Strebel in the Rancho de las Animas ceramic group, and others come from near Alvarado.

Coming into the Maya area, we find spouted forms associated with the early black-on-orange ware of Salvador, some specimens of which have tetrapod supports and give every impression of substantial antiquity. In the sub-floor digging at Uaxactun, spouted ves-

<sup>1</sup> Gila Valley, Arizona, effigy bowls found by Arthur Woodward of the Los Angeles Museum, published in the Rotogravure Section of the *Los Angeles Times*, Sunday, June 8, 1930. Moore, 1910, Plate XVII.

<sup>2</sup> Linné, 1929, pp. 111-117. Lothrop 1927, b, pp. 195-197.

<sup>3</sup> Vaillant, 1930, a, Plate V; 1931, c, Plates LXX-LXXVIII.

<sup>4</sup> A pot-stand was found in one of the tombs at Monte Alban during Caso's investigation of 1931-1932.

<sup>5</sup> Moore, 1908, Figs. 4-6, Plates XVI, XVII, XX; 1910, Fig. 31, Plate XVIII; 1911, Figs. 17, 25, Plate XXX.

<sup>6</sup> Lumholtz, 1902, Vol. II, p. 334.

<sup>7</sup> Seler, 1915, c, Figs. 3, 4, 6, a, 7, b, 12, a, Plates I-V.



sels were frequently found.<sup>1</sup> At Santa Rita, British Honduras, Gann uncovered a spouted vessel in an extension to Mound 6 wherein had been found the bowl with tetrapod support mentioned above. He also states that these "chocolate pots" are common to the entire Santa Rita region.<sup>2</sup> Joyce describes one with an effigy of a human face, found at Lubaantun and, therefore, probably late. The Uloa Valley yields a number of these spouted vessels, and others have been recovered by S. K. Lothrop from La Florida in southwestern Honduras. Effigy vessels with spouts occur in Costa Rica, and plain vessels of this type are common at Coclé in Panama. They fade out, however, to the south, although a few examples are known from Peru, from Aymara sites in the region of Lake Titicaca,<sup>3</sup> and from the province of Jujuy in the Argentine.<sup>4</sup>

We have gone into considerable detail tracing the distribution of the various shapes encountered in this lowest level of Holmul in an effort to establish certain connections that would be valuable in anchoring this group of Maya ceramics. We find that in the possession of tetrapod pots and pot-stands, Holmul I pottery equates with that found by J. Eric Thompson in the southern Cayo region of British Honduras. In respect to tetrapod supports and pots with spouts, it compares with Gann's excavations in the north of the colony. In Salvador a collection of pottery was found that included spouted vessels, the tetrapod support, and annular bases, made of a peculiar ware that was also found under a thick layer of volcanic ash. The implications are that these Salvador pieces are very early. Moreover, in the pottery of the archaic Maya-speaking Huastec, we find also spouted vessels and the use of the annular base. The generally wide distribution of these two forms of pottery, and of the pot-stand in the south, indicates antiquity. In decoration, however, these Holmul vessels more closely approach the Maya tradition, and their designs are very different from both the Salvador black-on-orange and the Huastec black-on-white.

Such Holmul I shapes often tie in with certain other forms, decorative styles, and cult practices which follow much the same general distribution as the annular base and the spouted vessel. These are: bowls made into human and effigy forms by the addition of features, heads, or limbs; bowls which are modelled; shoe-form pots; decoration involving the use of modelling, filleting, incision, and polishing, instead of painting. Frequently associated with these traits are the practice of the figurine cult, often in the form of moulded figurines or effigy whistles, and the manufacture of rude stone monuments.

Most of these practices are absent or rare in the Early Cultures of the Valley of Mexico, but they do appear in southern Middle America with implications of antiquity. Yet this complex ought not to be treated as a culture, as a coordinated tribal entity, but rather as a group of traits passed on from one region to another or from one tribe to another as an influence, such as has been the case in the practice of agriculture. This complex of shape has been called "Q" by Dr. Lothrop and the writer in order to avoid implications of time or tribe.

Embraced in the sphere of Maya cultural influence, there are five places where notably Early material is found. There is the Salvador complex which is, in part at least, of reasonable antiquity, proved by the volcanic ash which separates the early material from a layer in which Maya- and Nahua-influenced objects are found. This early group embraces tetrapod supports, annular supports, human and animal effigy bowls, filleted bowls, spouted vessels, and figurines. The lowest level of Gamio's excavations at Finca

<sup>1</sup> Information supplied by Edith Ricketson.

<sup>2</sup> Gann, 1918, p. 77, uses the term "chocolate pot." See also the Anonymous Conqueror, Cortes Society edition, p. 41, where this vessel-form is described as a container for chocolate.

<sup>3</sup> Collections of the American Museum of Natural History.

<sup>4</sup> Serrano, 1930, Fig. 81.

Arevalo yielded effigy bowls with absence of polychrome decoration, modelled bowls, an example of the Salvador burnt-out painted pottery, and figurines. Apparently in association with these finds were the Finca Miraflores sculptures which tied in with others that were used as foundation stones for Stelae 4 and 5 at Copan.<sup>1</sup> The sub-floor Uaxactun ceramics followed a tendency to avoid painted decoration and included pots with spouts, effigy bowls, effigy whistles, and figurines, some in the style of Salvador, and some which are transitional into "Maya" forms. Holmul I produced tetrapod supports, annular bases, a pot-stand, and spouted vessels. It is obvious that although the sum total of these traits fits into the "Q" complex, yet each site differs from the other. Uaxactun is more in the tradition of the Finca Arevalo than of the Cerro Zapote in Salvador. Holmul I, on the other hand, ties in better with the Salvador material in the American Museum of Natural History than it does with either the Uaxactun or the Finca Arevalo, but not one of these ceramic groups relates closely to the demonstrably early pottery emanating from Zacatenco or Ticoman in the north.

We may then assume from this evidence that Maya ceramics, even in the Peten, did not follow a uniform course of development from a single point of origin. Moreover, those ceramic groups which are Early in southern Central America differ from those in central Mexico, and an examination of Central American ceramics reveals a group of forms that have in essence stronger connections with South America than with Mexico. It also seems evident from our involved discussion that we have not begun to scratch the surface of the history of the rise of Central American and South American ceramics. We do know, however, that whatever the fundamental origins of Holmul I pottery, it exerted an influence, shown by specific resemblance, into Central and Northern British Honduras, and very probably was the base for the later developments at Holmul.

**Holmul II, the Second Burial Period.** There is very little material of this period, but the vessels in the following group connect closely with the Holmul I complex.

*With Skeleton 16.*

1. Polished black olla. (c-5629)
2. Plain pot. (Unidentified)
3. Orange lacquer ware bowl, composite silhouette, no bevel. (c-5683)
4. Pot-stand, black lacquer, incised, four solid ball feet. (Plate 19, *g*)
5. Scutate cover, black, incised, surmounted by effigy head; with pot No. 6. (Plate 20, *a* and *b*)
6. Bowl, composite silhouette and bevel, incised decoration, four swollen cylindrical legs. (Plate 20, *a*)

The orange lacquer composite silhouette bowl, which is of doubtful provenience, has its origin perhaps in the preceding epoch, and the shape might have developed from one of the bowls with four legs. The pot-stand is of black lacquer with incisions on the shank, and its support is achieved by four button feet. Since the Holmul I specimen is of hard red ware, possibly of foreign make, the black lacquer composition of this vessel shows it to be definitely of local manufacture.

The most ornate vessel of this period is a black lacquer bowl, which has a shield-shaped or scutate cover. The knob is a rather crudely modelled jaguar head, and legs incised on the top of the cover give a zoöomorphic effect to the whole. The bowl proper is equipped with a flange or bevel at the junction of the wall and body elements. Two conventionalized panels, possibly representing a serpent, are cut in the wall as a decoration. Four swollen cylinder legs support the vessel. This bowl is derived from Holmul I styles, as shown by its basal bevel, its four swollen cylinder legs, its lacquer ware com-

<sup>1</sup> Lothrop, 1926, *b*, pp. 166-167. Morley, 1920, pp. 208-209, 356, 421-422, Fig. 67, *a* and *b*.

position, and its panels of conventionalized design. The use of a black lacquer burnish and an effigy cover is a new departure.

The vessels of Holmul II do not fit into any ceramic complex that is at present known to the writer. The smooth outlines of the yellow lacquer bowl appear again in the decadent Holmul IV group and in a few scattering examples from Yucatan. The distribution of the pot-stand we have already considered, in our analysis of the affiliations of Holmul I ceramics. The black lacquer tetrapod bowl with cover resembles, however, a bowl from Ococingo, Chiapas, figured by Seler.<sup>1</sup> This bowl is of simple silhouette, and the support possibly may be tripod; yet the legs are swollen cylinders, the designs are incised, and the cover is surmounted by a fish.

There is not a sufficiently large body of material from the second period of Holmul to make any searching study of ceramic affiliations, but it does fulfill the requirements of a transitional stage from Holmul I pottery to the sharply stylized ceramics of Holmul III. It is also significant that this rise in sophistication shown by the bowl and cover should be associated with the enlargement of Building B.

**Holmul III, the Third Burial Period.** There were four phases of interment in Holmul III, of which the first, the burial of Skeleton 15 in Room 4, had no pots at all. The second phase was represented by Skeletons 13 and 14 in Room 2, which were equipped with thirteen pottery vessels.

*With Skeletons 13 and 14.*

- 1-2. Pot and cover, black lacquer ware, composite silhouette bowl with bevel, incised decoration, scutate cover with tiger-head knob finely incised. (Plate 21)
3. Composite silhouette red lacquer bowl. (c-5573)
4. Bowl with pitcher mouth, unslipped grey ware, striated body. (Plate 20, d)
5. Effigy bowl with pitcher mouth, unslipped grey ware in form of peccary. (Plate 20, c)
- 6-7. Pot and cover, polychrome lacquer, composite silhouette bowl with bevel, scutate cover with knob, also polychrome, covered with pink and green plaster. (Plate 20, e, and Frontispiece)
- 8-9. Black lacquer composite silhouette bowl with basal bevel, scutate cover surmounted by tiger's head, legs and decorations depicted by incision with red filling. (Plate 22)
- 10-11. Black lacquer composite silhouette bowl with basal bevel, scutate cover with grotesque head, perhaps a serpent's, incisions representing a stole. (Plate 23)
12. Scutate cover with ornamental knob, black lacquer ware, face incised on either side near edge. The bowl which fits it is not mentioned in Merwin's notes, but Pot 16, Skeleton 1, fulfills that requirement. (Plate 24)

The four black lacquer composite silhouette bowls introduce the development of the great beauty and sophistication of pottery which characterize Holmul III. The wall occupies the major proportion of the vessel and the basal element is reduced in size. A bevel or flange is attached to the junction of the wall and body elements, and on this flange are cut the simple incisions which are the only decoration of the bowl proper. Support is given by a shallow ring at the base of the body element. A lustrous black slip is run over the exterior of the wall of the bowl and the entire interior. The exterior of the body is covered with a light brown wash and smoothed.

The lids of the vessels receive the major decorative attention. These scutate covers are slipped in black, and shrewdly modelled knobs are attached. Two knobs are extremely naturalistic representations of the heads of jaguars whose limbs and body markings are conventionally indicated by incisions on the cover. Each animal is shown wearing a sort of bib. A third knob represents a mask, apparently a cross between a tiger and a serpent. A double stole extending to the front, rear, and sides is incised on the lid. The

<sup>1</sup> Seler, 1901, Fig. 279.



fourth knob is a simple cylinder with a swelling base and two panels representing faces incised at the edge of the cover.

Another composite silhouette bowl and cover is painted in polychrome. A red lacquer slip is run over the entire interior of the bowl to the exterior of the wall, a white slip is applied, and the bottom of the bowl is left unslipped. Two panels representing some serpent motif are painted on the exterior in red, black, and orange, while vertical lines in the same colors act as a frame. Two black zones separate these polychrome designs. The cover is scutate, capped by a cylindrical knob. The polychrome design is hidden by a plaster coating of pink and green, which may have been applied to enhance the value of the vessel as a mortuary offering (*Frontispiece*).

Two unslipped vessels of porous grey ware offer a contrast to these ornate bowls. A spherical olla with a pitcher mouth has simple striations on the exterior. The other bowl, also with a pitcher mouth, is shoe-shaped and, by means of modelling at the tip and the filleting on of eyes and ears, gives a very naturalistic impression of the head of a peccary.

The black bowls are, very clearly, developments from the tetrapod bowl with zoö-morphic cover occurring in the Holmul II group. A knowledge of polychrome painting existed in Holmul I, where also was found thus decorated a composite silhouette bowl with a betel base. The porous grey vessels are made of the base clay used in lacquer ware, and as this material is employed very commonly for storage vessels in the Maya area, their presence most certainly is not an innovation. The disappearance of legs to support bowls is a striking feature of Holmul III.

The distribution of lacquer ware in shapes like the composite silhouette bowl with basal bevel is confined quite closely to the Central Maya area. The E Group of Uaxactun, which is later than the plaster and rubble structure, E-VII-sub, produced this bowl shape in both black and red lacquer. Dieseldorff figures several similar vessels from the Chamá, Alta Vera Paz, region in Guatemala. Stoll shows a bowl of this type with a serpent panel in polychrome which is supposed to have come from Santa Cruz Quiché.

A polychrome bowl, with polychrome birds on the interior and a vestigial glyph band, is in the Museum in Merida, Yucatan. A sherd of another polychrome bowl with rectilinear pattern was found in a grave near Campeche. Neither of these vessels was closely similar in decorative style to the Holmul bowls. Blom found bowls of this shape with polychrome patterns in the lower vault of a tomb at Yoxiha, Chiapas, but the decoration is stylistically different from Holmul.

Covers of bowls are very rare in Middle American ceramics. Scutate covers of the Holmul type have been recovered at Ocotingo, Chiapas, and from the San Juan Teotihuacan culture in Mexico;<sup>1</sup> Gann found ornately engraved covers in British Honduras.<sup>2</sup>

The porous grey ware vessels belong probably to the storage group of Holmul ceramics. Such wares are known from all over the Peten and Yucatan. The specimen made to represent a peccary ties in with the widely distributed shoe-shaped pot, of which examples are known from the Southwestern United States,<sup>3</sup> and from the Mississippi Valley.<sup>4</sup> Others are found on the flanks of the Volcano Popocatepetl and at San Juan Teotihuacan in the Valley of Mexico.<sup>5</sup> Polished bowls of this shoe-shape, modelled into the faces of dogs and tigers, have occurred at Jalapazco in Puebla, and an effigy vase with a spout is in the Muir collection from the Huasteca in the American Museum of Natural History. It occurs again in Western Mexico at Chupicuaro, Guanajuato, and

<sup>1</sup> Seler, 1915, c, Fig. 165. Gamio, 1922, Fig. 49, a, b.

<sup>2</sup> Kidder, 1924, Fig. 20, d.

<sup>3</sup> Gann, 1918, Plates 17-18; cf. Gordon, 1925, Plates XV-XVI.

<sup>4</sup> Moore, 1910, Fig. 61.

<sup>5</sup> Gamio, 1922, Fig. 58.



variations in zoöomorphic forms appear in Oaxaca.<sup>1</sup> The shoe-shape is very common in the region of Quetzaltenango, Guatemala,<sup>2</sup> while examples in the Peabody Museum from Santa Cruz Quiché have effigy markings like the Holmul III specimen. Gordon figures a shoe-form bowl from the Uloa Valley. Such forms do not exist in the Salvador collections in the American Museum of Natural History, but they are especially common in Costa Rica and Nicaragua, ranging from small vessels to large mortuary urns. Lothrop gives the distribution of these vessels in various wares and shapes as ranging from the Southwestern United States and the Mississippi Valley to Peru, Ecuador, and the Argentine.<sup>3</sup> This form is sometimes known as a "duck" pot. Although it could have been easily evolved separately in different localities, this form has in Central America an aspect of South American affiliation. With the exception of this shoe-shaped vessel, the pottery of the second phase of Holmul III burials is well within the local tradition of the site.

The succeeding episodes of this period reveal a further evolution of styles. Skeleton 5, which disturbed Skeletons 13 and 14, Skeleton 9 (later dislodged by Skeleton 10), and three vessels apparently associated with another disturbed burial, make up the sources for the ceramics of the third phase of Holmul III burials. These vessels are:

*With Skeleton 5 (or 12, the bones were confused).*

1. Black lacquer bowl, composite silhouette, basal bevel. (c-5476)
2. Orange lacquer composite silhouette bowl. (c-5643)
3. Scutate cover surmounted by bird head, decorated in polychrome and covered with plaster, fits No 4. (Plate 25, a and c)
4. Polychrome lacquer bowl, composite silhouette, basal bevel. (Plate 25, b)
5. Small black lacquer bowl, simple silhouette, pinched in at sides. (c-5479)

Perhaps associated with Skeleton 5 were Pots A and B which were found at the west side of Room 2. There is also a possibility that they might have been associated with the disturbed Skeleton 10, although found on a slightly lower level. On the other hand, they might have belonged to a completely removed skeleton.

*Probably with Skeleton 5 (or 12).*

- A. Polychrome lacquer bowl with composite silhouette and bevel edge, human-headed serpent painted in panels, scutate cover for same surmounted by bird head, red lacquer slip. (Plate 26, a and b)
- B. Large red lacquer bowl with four hollow, conical legs. (c-5593)
- C. Black lacquer bowl, composite silhouette with bevel, incised on lip and on bevel. (Plate 26, c)

The composite silhouette form of bowl still obtains in black and polychrome lacquer. There is a tendency to elongate the decorative panels in the two polychrome examples. On the bowl of this type, which was not in direct association with a skeleton, we find a human-headed serpent depicted within the panels, while the other has a pure design. Both these polychrome bowls have scutate covers surmounted by parrots' heads. The cover of the bowl in pure design has the wings painted on it in polychrome, and from the head, which is also colored, depends a bib like those on the black lacquer animal effigy covers. The other is slipped red and, except for the modelling of the knob, is unadorned. A flat, red-bottomed bowl belongs in the group of vessels unassociated with the skeletons. It is supported on four unslipped hollow conical legs.<sup>4</sup> A small hemispherical bowl of well-burnished black lacquer, pinched in at two points of the rim, completes the list.

The composite silhouette bowls, both of black and polychrome lacquer, connect closely with the second phase of Holmul II, while bird-head covers of the polychrome

<sup>1</sup> Noguera, 1930, b, Fig. 33, f and g; Fig. 36, g; Fig. 37, a and b.

<sup>2</sup> Seler, 1904, a, Fig. 25, b. Gamio, 1926-27, Plate on p. 131.

<sup>3</sup> Lothrop, 1926, a, p. 254.

<sup>4</sup> Vaillant, 1927, Fig. 229.

bowls of the third phase combine the modelling of the black ware covers with the painting of the polychrome bowls of the second phase. The flat-bottomed red lacquer bowl, by means of its conical tetrapod support, connects with the Holmul I plate and the Holmul II bowl with effigy cover. In actual shape, the body element of the composite silhouette is omitted, leaving the wall and the flange or bevel enclosing a flat floor. The little simple silhouette bowl has not occurred in the previous groups. It seems clear that these vessels belong to the same general period as those of the second phase, even though they accompany skeletons interred subsequently. Data of a comparative nature are few. The human-headed serpent painted on one of the polychrome bowls appears carved on a bowl encountered by Gann,<sup>1</sup> and on a beautifully carved vessel from San Agustín, Aguascaltepec, Guatemala.

With the fourth phase of Holmul III, new elements begin to enter the ceramic sequence of the site. Skeletons 1, 2, 3, 6, and 10 were buried after Skeleton 5, but how much later is problematical. On the basis of the accompanying pottery we have placed them in a fourth group of Period III. The pots are:

*With Skeleton 1.*

1. Polychrome lacquer composite silhouette bowl. (c-5665)
2. Red lacquer composite silhouette bowl. (c-5426)
3. Red lacquer simple silhouette bowl, ring base. (c-5427)
4. Marbled slate bowl, simple silhouette. (c-5428)
5. Simple silhouette bowl, ring base, red lacquer interior, unslipped wiped porous grey exterior. (c-5429)
6. Black lacquer pot-stand, incised on upper lip. (Plate 26, d)
7. Yellow lacquer bowl, simple silhouette, ring base. (c-5431)
8. Red lacquer bowl, simple silhouette ring base. (c-5432)
9. Cylindrical bowl, red sub-lacquer, four small solid cylinder legs. (Plate 26, e)
10. Composite silhouette bowl, misfired red lacquer. (c-5434)
11. Bowl, attached to pot-stand; bowl, white-brown lacquer, stand, red lacquer. (Plate 27, e)
12. Bowl with spout and effigy cover, brown lacquer, cover completely modelled. (Plate 27, a)
- 13-14. Bowl and effigy cover like Pot 12. (Plate 27, b, c, d)
15. Pitcher, porous grey ware, band at shoulder in appliqué, pinched. (c-5440)
16. Black lacquer composite silhouette bowl, apparently associated with Pot 12, Skeletons 13 and 14, according to Museum presentation. (Plate 24, b)
17. Misfired red lacquer ware bowl, composite silhouette, basal bevel. (c-5442)
18. Marbled slate bowl, simple silhouette, rim pinched at sides. (Plate 27, f)
19. Bowl with spout and effigy cover. (c-5439)

*With Skeleton 6.*

1. Bowl, flaring lip, flat-constricted base, yellow lacquer interior, unslipped exterior. (Plate 27, h)
2. Bowl similar to No. 1. (c-5521)
3. Cylindrical vase, red sub-lacquer ware, three strap feet. (c-5522)
4. Not found in collections.
5. Miniature olla, hard red ware, gadrooned body. (Plate 27, g)
6. Polished black bowl, simple silhouette with spout. (Plate 27, i)
7. Composite silhouette bowl, basal bevel, yellow lacquer, red decoration, figure in center representing man with bee's body. (Plate 29, b)

*With Skeleton 10.*

1. Cylindrical vase, orange lacquer ware, polychrome design with monkey pattern in lost color, cover surmounted by human head. (Plate 28, a and d)
2. Cylindrical vase, orange lacquer ware, designs in red and black, cover surmounted by human head. (Plate 28, c, e, f)

<sup>1</sup> Gann, 1918, Plates 17 and 18; Gordon, 1925, Plates XV and XVI.

Skeleton 10 disturbed Skeleton 9, and was apparently the last interment made into the temple portion of Building B. It may have been carried out with the burials of Skeletons 1, 2, and 6.

The standard regional ware, lacquer, continues to persist in this fourth phase of Holmul III. The elaborate polychrome bowls with bevels of the second and third burial groups are missing. Instead, there are some composite silhouette bowls with yellow and red slips. One bowl has a wide grecque in red and a painted figure on the interior depicting a man with a bee's body, another has no decoration, and a third has a red design, set in panels separated by strips of black. A number of simple silhouette bowls set on low ring bases are found, some of which are slipped in red and yellow, one being unslipped on the exterior and painted red on the interior. Shallow flat-bottomed bowls appear with wide spreading sides, red lacquer inside, and unslipped outside, like those found in previous periods and in the late cache over Building B. A curious black-brown lacquer ware occurs for the first time. It appears in two bowls with spouts, surmounted by covers modelled into the forms of deer. One of these is slipped and the other has indentations in the side like the black lacquer bowl with Skeleton 5. Derived from this group are hemispherical-form bowls with a harder slip. A black lacquer pot-stand is reminiscent of Holmul II, and one of red supports a small white lacquer bowl attached to it. A pitcher of porous grey ware is very similar, save for a ring of fillets, to one found with Skeletons 13 and 14. In a sub-type of red lacquer, which has a well-kneaded basal paste, two wide-mouthed cylindrical bowls were found, strengthened at the neck and base and set, one on three slab legs, the other on four stubby cylindrical feet. Hard red ware, wherein the texture of the base clay approaches that of the slip, forms a tiny gadrooned olla.

Skeleton 10, the last burial made inside Rooms 1-4, possessed two orange lacquer cylindrical vases. Each has a cover surmounted by an unslipped human head. One bowl bears a conventionalized glyph pattern in black framed by strips of red, and the other is decorated by a "lost color" pattern, representing a seated monkey in black, framed by diagonal strips of orange and black.

The persisting forms of previous phases of Holmul III are shown by the lacquer ware composite silhouette bowls and pot-stands, the little bowl with pinched-in sides, and the porous grey ware pitcher. Yet decadence seems to be shown by the absence of complicated polychrome designs, the only example being the bee-man painted on the bottom of one of the vessels. The low-spouted bowls and the little vessels on ring bases appear to be new types, although far less sophisticated than their predecessors. The modelled covers might be considered a degeneration from the beautiful scutate forms of Holmul II, and the first three phases of Holmul III. The wide-mouthed cylindrical vases are new, as are the tall polychrome vases with covers.

The distribution of some of these new forms may be significant. The bee-man figure is not unlike one painted on the floor of a tripod bowl from Idzincab, Yucatan, in the Merida Museum.<sup>1</sup> The broad cylindrical bowls first call to mind San Juan Teotihuacan, but in the absence of a continuous distribution as far as the Maya area, the resemblance has no significance. The slab-foot support of one of these bowls recalls the support of Maya vessels in Yucatan. There the resemblance ceases, for the slate grey flat-bottom bowls of the Peninsula are quite different from the Holmul vessels.<sup>2</sup> Other forms more closely similar to this have been found at Baking Pot on the Belize River,<sup>3</sup> at Santa Cruz

<sup>1</sup> Tozzer and Allen, 1910, pp. 298-301, Plate 2. It is much less conceivable that the personage represented may be a snail-god. Cf. Tozzer and Allen, 1910, p. 297, Plate 1; Dieseldorff, 1926, Plate 21; Vaillant, 1928, p. 573, and Spinden, 1928, Fig. 23, for serpent emerging from

snail shell. Also cf. commentary on the Idzincab specimen, Vaillant, 1927, pp. 155-156, 338-339, Fig. 295.

<sup>2</sup> Vaillant, 1927, Figs. 333-337.

<sup>3</sup> Ricketson, 1931, Plate 17, b and c.



Quiché (in the style of San Juan Teotihuacan) and at Zacapa. The cylindrical vessels in polychrome lacquer, their covers surmounted by human heads, bear some resemblance to a collection of jars from near Coban,<sup>1</sup> and vaguely similar specimens are figured by Seler from the same region. These vessels are carved, however, in a grey ware. The face of one is not far removed from the grotesque head on a black lacquer pot with Skeletons 13 and 14. The "lost color" design suggests also connections far afield. It occurs very early in Mexico in Intermediate Ticoman times,<sup>2</sup> and early pottery from Salvador may possibly have been decorated in this way. "Lost color" decoration extends from Jalisco to western Honduras and from Costa Rica to northern Peru. Despite this relatively early occurrence in Mexico, it does not seem indigenous to the Ticoman Culture and probably goes back to a South American source. The use of the monkey in Maya design is fairly prevalent outside of the Holmul area. It is usually treated with great artistic freedom in a conventionalized form. Painted monkeys adorn bowls in the Copan Maya styles from Copan and from Salvador.<sup>3</sup> One Copan example occurs under Stela I, 9-12-5-0-0, but they are especially common from graves in Mound 36 which are probably late. Incised monkeys are traced on fine grey ware bowls from Sotuta and various other regions in the Yucatan Peninsula,<sup>4</sup> and also from Yoxiha, Chiapas. A beautifully carved pot with a monkey motif is shown by Gann,<sup>5</sup> and another is figured from the Cayo region by J. E. Thompson. None of the localities cited as yielding monkeys as pottery designs show very close affinity with Holmul, and they are probably all later in date than the Holmul III period. A sherd of black lacquer ware, decorated by a design representing a serpent's head, is catalogued as probably from Building B, Room 2. Carved ware is relatively rare in the Peten, being restricted to Nakum, and is equally scarce in British Honduras.

If we coupled the decline in polychrome painting with such elements outside of the Holmul tradition as "lost color" decoration, the monkey pattern, the bee-man painted on a vessel floor, vases with effigy heads, broad cylindrical pots on legs, and the pot-stand, we might have some grounds for believing that decadence plus contact with exterior regions had set in. Yet the absence of documented collections for comparison prevents a well-substantiated analysis of this sort.

On the whole, it would seem that the pottery of the second and third phases of the third period harmonizes very closely and that the vessels of the fourth epoch are a degeneration from that high peak. The composite silhouette bowls bring Holmul III into chronological unity with the pottery of Group E at Uaxactun, and also show connection between Holmul and the Chamá region. A very few forms of this type in different decorative styles appear as isolated specimens, foreign to the main body of Yucatan ceramics, and they are absent from northern British Honduras. In Copan, which by its dates must be contemporaneous with the Peten, there is not a trace of connection with Holmul. The Chamá bowls, a vessel from Santa Cruz Quiché, and the Copan vases seem to show Holmul III to be more closely affiliated with the Highlands of Guatemala than with the pure Maya culture zones north and east of the Peten.

**Holmul IV, the Fourth Burial Period.** Skeleton 22 was found in Room 10, a vault set in the exterior covering of Building B, and is, therefore, the last interment in that structure.

<sup>1</sup> Hirtzel, 1925, pp. 669-672; Joyce, 1927, p. 105; Seler, 1904, a, Fig. 22, a.

<sup>2</sup> Vaillant, 1931, c, Plate LXX, Fig. r, p. 290. Lothrop, 1926, a, pp. 144, 404, 405, 409, 410; 1927, b, p. 98.

<sup>3</sup> Spinden, 1915, Figs. 67, 68.

<sup>4</sup> Vaillant, 1927, Fig. 287.

<sup>5</sup> Gann, 1918, Plate 18, a.



*With Skeleton 22.*

1. Orange lacquer composite silhouette bowl, basal bevel, formalized decoration in black and red. (Plate 28, *g*)
2. Orange lacquer bowl, vestigial bevel, decoration crude in black and red. (Plate 28, *h*)
3. Orange lacquer bowl, composite silhouette, basal bevel and interior, crude design on exterior in black and red. (c-5663)
4. Orange lacquer bowl, composite silhouette, vestigial basal bevel, red interior, crude design on exterior in black and red. (c-5664)

A number of flat-bottomed dishes were found between the roof of Temple B and the floor of the substructure, together with two red lacquer plates. (Cf. for shape Plate 27, *h*.)

Three of the four polychrome lacquer composite silhouette bowls with Skeleton 22 exhibit such symptoms of degeneracy as a very simple running design, and in the case of two, smoothing off of the basal bevel. One bowl is adorned with panels depicting a highly conventionalized mask and has its basal bevel fully developed. There is nothing inherently sophisticated about the formation of the mask, but the decorative effect compares favorably with the Holmul III decoration.

The bowls set as foundation deposits between the roof of Rooms 1-4 and the floor of the covering pyramid were for the most part rough flat-bottomed plates with sharply flaring sides, somewhat similar to vessels found by Ricketson at Uaxactun. One miniature olla of hard clay was found, represented as placed in an incised white basket (Plate 28, *b*).

Architecture forms the most satisfactory means of defining periods since the various stages in the completion of a building can be determined with exactitude. Equally clear are the superpositions of burials, particularly where one disturbs another. The change of pottery styles is gradual and old forms are apt to be retained. Thus we have governed our pottery analysis by the architecture and the burials. Were it not for this control, it would seem more logical to join the fourth phase of Holmul III with these Holmul IV vessels. The general breaking down of polychrome design would give good grounds for so doing. Yet such a grouping would override the implication of period presented by the covering of the older temple by the new platform. From an ethnological standpoint, Holmul II-IV could be grouped as a single period, since Periods II and IV represent the ascending and descending stages of development.

**Holmul V, the Fifth Burial Period.** Holmul V includes a group of vessels that are out of the evolutionary tradition which prevailed from Holmul I to Holmul IV. At the same time, these burials were made in such outlying places as the burial mound, Structure F of Group I, and the walled-up Room 1 of Building X.

*With Skeleton 1, Building F.*

1. White lacquer bowl, flat bottom, supported on three hollow cylindrical legs, designs in red and black, three panels of pelicans on exterior, three panels of pelicans on interior plus glyph band, god and suppliant painted on bottom. (Plate 29, *a* and *c*)
2. Tall cylindrical jar, yellow lacquer interior, white plaster on exterior with designs in black.
3. Cylindrical vase, white lacquer, designs in two shades of red depicting god and suppliant with vertical and horizontal glyph bands. (Plate 30, *a* and *c*)
4. Bowl, flat bottom, white lacquer exterior slip with designs in black, red lacquer interior. (Plate 31, *a*)
5. Plate, flat bottom, three hollow cylindrical legs, white lacquer slip, god on throne on bottom, glyph band in interior rim, exterior in pure design. (Plate 31, *d* and *e*)

Buried into the structure of Building F were three additional pots:

- A. Simple silhouette bowl, red lacquer ware with white bands at neck. (Plate 31, *b*)
- B. Shallow dish, on ring base, red lacquer interior, unslipped exterior. (c-5673)
- C. Bowl with flat bottom, three hollow cylindrical legs broken off, red-on-white lacquer exterior, red-on-yellow lacquer interior. (c-5672)

With Skeleton 1, Ruin X.

1. Shallow plate, unslipped exterior, red-on-yellow lacquer interior, peculiar design nearly obliterated on interior. (c-5709)
2. Large plain bowl. (c-5711)
3. Cylindrical vase, two shades of red-on-yellow lacquer, design depicting pelicans and fish with horizontal glyph band. (Plate 30, b and d)

Polychrome lacquer ware still prevails, but the familiar composite silhouette bowl with bevel base has disappeared. Instead, there are tall cylindrical vases and flat-bottomed dishes supported on three hollow cylindrical legs. Decoration is achieved by means of designs involving human and animal figures and the use of glyphs. It is by means of the vase shape and this method of decoration that we base the coincidence of date of the Building F and Ruin X burials.

Other types of vessels include a tripod support bowl with red paint on a white field, and a small bowl with a faintly concave bottom, having an inner slip of red and an outer of white adorned by black designs. A deep beaker, also of lacquer, has a red slip with bands of white at the neck, and a low bowl resting on a low ring base bears a red slip on the interior alone. A tall cylindrical vase carries an interior slip of yellow lacquer, but the outer adornment is formed by a coating of white plaster with designs in black. Plates with flat bottoms painted on the interior and with wide flaring mouths also occur.

A curious form of *incensario* was found in Room 2, Building B, Group III (Plate 31, c). It is cylindrical and rests on an annular base. The height could not be computed owing to breakage. The floor is perforated and on the bottom is a sort of handle. Traces of perforation can be seen in the walls. Whether this is a cover of an *incensario* or the base of one cannot be stated since no comparable specimens are accessible to the writer.

Their lacquer ware composition ties in the Holmul V vessels with those of Holmul I-IV, as does the low bowl on the ring base, which also occurs with Skeleton 1 of the fourth phase of Holmul III. The flaring plates with unpainted exteriors were found in the Holmul IV cache above Building B. In general, the shapes and decorations of the majority of the vessels are of considerable interest from standpoint of time and distribution.

Before discussing the vastly important pottery with polychrome life forms, let us examine the affiliations of the other vessels in the Holmul V group. Black-on-white decoration is relatively rare in the Maya area, but it does occur on bowl fragments found in the chultunes of Nakum. Other vessels of this ware were found at Baking Pot,<sup>1</sup> and Benque Viejo.<sup>2</sup> Pottery drums, decorated also in black and white, were found at the chultunes of Yalloch which is located in this same general region. Since pottery drums are a ceramic trait of Costa Rica, as is also black and white decoration, it would be interesting to know if we are confronted with another case of southern cultural influence as in the case of Holmul I.<sup>3</sup>

Cylindrical vases with unslipped exteriors, as if for an original plaster covering, were found at Copan, Honduras, under Stela M, which bore the date 9-16-5-0-0, and also in Tomb 11.<sup>4</sup> Other cylindrical vases decorated by painted plaster have come from Salvador.<sup>5</sup> On the other hand, vessels in other shapes which were covered with plaster occurred in Holmul I and III. Since this method of decoration extends as far north as San Juan Teotihuacan and Aljojuca near Jalapazco, Puebla, we may assume that the

<sup>1</sup> Ricketson, 1931, Plate 17, a. This bowl has a similar design but red and orange on cream paints are used.

<sup>2</sup> Peabody Museum Collections. (c-5131).

<sup>3</sup> Lothrop, 1926, a, and 1927, a, pp. 275-277, drums; 1927, b, black and white decoration.

<sup>4</sup> Collections of the Peabody Museum of Harvard.

<sup>5</sup> Collections of the American Museum of Natural History.

covering of vessels with plaster, which are then painted in gesso, is old in period and wide in distribution.<sup>1</sup> Painting on plaster is not to be confounded with the carved and inlaid plaster decoration of the ceramics of such Mexican sites as Totoate and Estanzuela, Jalisco, Chalchihuites and La Quemada, Zacatecas, the slopes of the Volcano Popocatepetl, Azcapotzalco in the Valley of Mexico, Tula, Hidalgo, and of a trade vase and other sherds from the Cenote of Sacrifice at Chichen Itzá, nor with the carved bowls with inlaid paint from La Quemada, Chalchihuites, and the bottom Early Zacatenco levels of El Arbolillo in the Federal District of Mexico.

The perforated *incensario* found in Building B, Group III, may fit into widely distributed *incensario* forms of Middle America. The earliest occurrence of these is at Copan and their culmination seems to be the degenerate Lacandone forms.<sup>2</sup>

A shape like the shallow-bottomed bowls with cylindrical tripod support is foreign to the ceramics of the Peten until this period, and to the pottery of Copan and Salvador. It is far more characteristic of Mexico, yet a bowl of this shape adorned by human figures painted in polychrome comes from near El Cayo, British Honduras,<sup>3</sup> another is shown by Joyce from Pusilhá, a third comes from Guatemala,<sup>4</sup> and others were found by J. Eric Thompson in the Cayo district. Some of these vessels were notched along a vestigial basal bevel, a characteristic which is repeated again in bowls from the Chultunes at Yal-loch. Thompson figures, from the southern Cayo region, composite silhouette bowls with degenerate basal bevels, which he classes as late. Bowls with shallow bottoms and presumably tripod supports were found by Gann at Pusilhá, British Honduras. A bowl of this type found in Building X (Pot 1) has a crude figure on its floor and is paralleled, perhaps, by Thompson's finds in the Cayo region and Gann's at Pusilhá.

While the area of distribution of the tripod support is very wide, as we have seen in our discussion of Holmul I ceramics, that of the cylindrical leg is restricted. In contrast to the antiquity of the tripod support in general, the cylindrical tripod particularly is very late. According to Lothrop, this type of leg is late in Costa Rica. It appears in Salvador in a decadent red-on-yellow style. A single undecorated bowl of this type is figured by Gordon among his Uloa Valley specimens. On the Highlands of Guatemala it is rare, and Mason shows an example decorated in a style reminiscent of Cholula pottery.<sup>5</sup> At Chichen Itzá we find a cylindrical bowl, with legs, made of a Fine Orange Ware associated with the Mexican period and emanating from central Vera Cruz.<sup>6</sup> In Oaxaca there is a high development of low, flat-bottomed plates that do not have, however, a hollow cylindrical support, but one of bulbous rattle legs. In southern Vera Cruz the cylindrical tripod support associated with flat-bottomed dishes occurs, but the greatest center of this shape is the polychrome Cholula-Chalco style of pottery from Puebla and the Valley of Mexico. Another emanation of this shape is found in the ceramics of the Isla de Sacrificios, Vera Cruz, which undoubtedly is connected with the mainland, and it is with this complex that the Fine Orange Ware of Chichen is probably associated. One would assume, on this basis, that the tripod bowl with cylindrical support was late. On the other hand, Maya archaeology, as known, has so little definite connection with specific locations in other culture areas that there is no basis for very definite pronouncements.

Several of the bowls and vases of Holmul V are adorned with human figures and with

<sup>1</sup> Peñañel, 1890, Plates 74, 75. Seler, 1915, c, Fig. 178, Plate LXIII.

<sup>2</sup> See Vaillant, 1927; Gordon, 1896; Strebel, 1885-89; Tozzer, 1907; and Bibliography under Quen Santo, Southern Cayo, Chama, Pusilhá, and Santa Rita.

<sup>3</sup> Collections of American Museum of Natural History.

<sup>4</sup> Gordon, 1928, Plate XLIII.

<sup>5</sup> Compare J. A. Mason, 1927, b, p. 372, with Spinden, 1928, Fig. 58.

<sup>6</sup> Vaillant, 1926; 1927, pp. 114-130, and p. 359, Figs. 372, 374.



glyphs, in contrast to the previous periods at Holmul. The use of the human figure in Maya pottery decoration has a wide distribution, but in the style of presentation there are definitive regional factors. There are two main types of human figures, the crude Copan style and the carefully executed Holmul V-Chamá type. Since the Copan pottery specializes in the glyph band as a decorative element, since the variations of human figures are equally characteristic there, and since some of these vessels were found under dated monuments, our examination of polychrome life forms and glyphic decoration should begin with this site.

A cylindrical vase with a swell or entasis of the sides was found under Stela I at Copan which had the date 9-12-5-0-0. As the vase was part of a ceremonial deposit, it must have been contemporaneous with the monument. There is always the possibility, as at Uaxactun, of resetting a stela, but in view of the elaborate vault and rich offering, there is a strong likelihood that the stela is in its original position. The vase has a border of conventionalized glyphs around the top, and a seated human figure shown on the side. The paints employed are black and two shades of red on an orange slip. Associated with this vase were other bowls decorated in pure design with glyph bands. One has a conventionalized monkey on the body. Tomb 2 yielded a vase with human figures alternately sitting and standing, and another depicting a quetzal bird.<sup>1</sup> Each of these was surmounted by a band of glyphs. The fact that this tomb is contemporaneous with the Stela I deposit seems assured because of the resemblances between the human figure vases and the decorative styles of other accompanying bowls. Tomb 4, likewise, appears to fall into this group because of the discovery of a vase with entasis which portrays a seated human figure and has a glyph band at the top. This connection is further established by the presence of a vase with carved glyphs in the same ware, although of a different shape, as a similarly decorated bowl found under Stela I. The painted figures shown on these Copan vases are characterized by a very free treatment of anatomical details.

Stela M, also at Copan, dated 9-16-5-0-0, produced another ceremonial cache of pottery vessels. Human representation occurs here only in one instance where a band of seated figures, highly conventionalized, is painted in a strip around a constricted cylinder bowl. Above these figures a glyph band also appears. Tomb 11, which connects with the Stela M vessels by means of several similar bowl shapes, produced a slightly constricted cylindrical "picture" vase with a curved thickened lip, supported on three thick slab legs, like forms found in the Uloa Valley.<sup>2</sup> In other tombs associated with the Stela M cache by means of similarity of forms and wares, highly stylized animal forms occur as decorations.

A third group of vessels seems to emanate from intrusive burials into Mound 36.<sup>3</sup> In their case, life forms appear as monkeys and men in solid outline technique. The glyph band tends to disappear while such forms as pear-shaped vessels with annular bases begin to come in. Since this seems out of the Copan tradition, it is reasonable to place it as after the final date there, 9-18-10-0-0. This style we have called Copan III, the Stela M group of pottery, Copan II, and the Stela I complex, Copan I.

We have dwelt at some length on the polychrome life forms of Copan because this is the only collection of Maya pottery which is associable, beyond all normal hazard, with dated monuments. By and large, however, this ceramic group is completely different from the mortuary pottery of Holmul. Such traits as lacquer ware and the composite silhouette bowl with basal bevel are absent. Decoration in polychrome pure design with

<sup>1</sup> Gordon, 1928, Plates XXXIV, XXXV, XXXI, XXL.

<sup>2</sup> Gordon, 1925, Plate XXV.

<sup>3</sup> Owens in Gordon, 1896, pp. 26-28. Vaillant, 1927, Figs. 9, 12, 15.



glyph bands is the rule at Copan. In general, the influence of Copan ceramics affects most strongly Salvador, where examples are found of life painting in the style of Copan I<sup>1</sup> and Copan II.<sup>2</sup> The Uloa Valley polychrome life forms seem to have received their stimulation from the Salvadorean aspect of Copan II.<sup>3</sup> In the Motagua Valley drainage near Zacapa there are, as might be expected, a number of examples of Copan polychrome life forms. Most of these are in the style of Copan I.<sup>4</sup> A derivation of this style seems to have penetrated further west, as one such vessel comes from Huehuetenango and another is supposed to have had its provenience at the Finca Pompeya.<sup>5</sup> These are possibly transitions into the style of Chamá which we shall discuss later.

Thus far, consideration of the Copan style of life painting has brought us no nearer to a solution of the chronological position of the Holmul V vases adorned with human figures. At a cave near Pusilhá, Honduras, a very striking body of sherds was excavated by Gann and by Joyce, which clarifies the situation considerably. This pottery represents a fusion between Copan II and Holmul V ceramic elements. Six convex strata were stripped one after the other and the sherds segregated for study. Certain implications of development existed from the bottom to the top strata, but there does not seem to have been a long lapse of time involved in this accumulation. It is difficult to judge pottery by photographs alone, but the Copan II influence is shown by simple silhouette bowl forms, monkey designs, the use of elements derived from or replacing broken-down glyph patterns, and carved designs.<sup>6</sup> These resemblances are not identities as much as examples of the same evolutionary tradition, which at Pusilhá reveal a breaking down of the Copan II design formulae. Holmul V elements appear in the tripod plates with glyph designs.<sup>7</sup> The life patterns on these recall designs on vessels found by Gann in northern British Honduras and by J. E. Thompson in the Cayo region, and on the flat dish in Ruin X of Holmul.<sup>8</sup> From the bottom layers, fragments with firmly painted human figures were found.<sup>9</sup> These show vastly better draughtsmanship than we noted in the case of the Copan I-II figures. Enough of one of these bowls remains to show a glyph pattern; the figures, however, are stable and are not depicted in activity like those of Holmul V, but they do distinctly recall vases showing figures found under late circumstances at Group E, Uaxactun, from which site one or two bowls are found which exhibit also traces of the same Copan influence.<sup>10</sup>

The Copan I figure painting was associated with Stela I, dated 9-12-5-0-0, and the Copan II with Stela M, dated 9-16-5-0-0. The last date at Copan is 9-18-10-0-0 on Altar G, and the first date at Quirigua is 9-14-13-4-7, with the closing date 9-19-0-0-0. But from Quirigua we have no similar material, so that our comparison must rest on the Copan and the Pusilhá-Uaxactun forms. Now, the well-drawn human figures of Pusilhá are better developed than those of Copan I or II; therefore, since there are no symptoms of a great indigenous culture center in southern British Honduras, we have some justification for assuming, on stylistic evidence, that they are later than the Copan specimens. Furthermore, the rest of the Pusilhá pottery seems to have been derived from the Stela M, or Copan II, group. Since Stela M is later than the founding

<sup>1</sup> Spinden, 1915, Fig. 65. Vaillant, 1927, Fig. 34.

<sup>2</sup> Spinden, 1915, Figs. 64, 66, 69. Vaillant, 1928, b, p. 573. Lothrop, 1927, a, Fig. 12. Gordon, 1928, Plate XXXI.

<sup>3</sup> Gordon, 1898, a, Plates I, IV-V.

<sup>4</sup> Seler, 1904, a, Figs. 26c, 27t, 28a. Spinden, 1913, Fig. 193. Gordon, 1928, Plates XXXII, XXXIII, XXXVI, XXXVII, XLIX, L.

<sup>5</sup> Gordon, 1928, Plates XXVI-XXVII, XLI-XXLII.

<sup>6</sup> Joyce, 1929, Plates XLI-XLV. Joyce, 1928, Plate XXXV, Fig. 4; Plate XXXIII, Fig. 4.

<sup>7</sup> Joyce with Gann, Gruning, and Long, Plate XXXIV, Fig. 1. Joyce, 1929, Plate XL, Fig. 1.

<sup>8</sup> Gann, 1918, Plate 19, b, Fig. 59. Thompson, 1931, Fig. 11, l; Fig. 12, a, b.

<sup>9</sup> Joyce, 1928, Plate XXXIV, Fig. 4; Plate XLII, Figs. 4-5.

<sup>10</sup> Photographs furnished the writer by O. G. Ricketson and A. Ledyard Smith. Also, Ricketson, 1926-27, p. 258.

date for Quirigua, where a great expansion from Copan probably took place, it would appear probable that this pottery represents the handiwork of a group of people dislodged from Quirigua after that site had been abandoned. This condition would argue for the lateness of polychrome life figures in this Pusilhá style. Although stelae from the temple site of Pusilhá, which is near the cave, give a date range from 9-7-0-0-0 to 9-15-0-0-0, there is no reason for assuming that the cave pottery falls within this epoch, especially when it does not closely resemble pottery of the same epoch at Copan, taken from beneath Stela I.

Although the Holmul figure painting is not the same as that of the Pusilhá caves and Uaxactun, we have some reason for thinking that it also is late because of its occurrence on the latest chronological horizon at Holmul, and the stylistic evidence which gives a relatively late date to figure painting at Pusilhá and Uaxactun.

Directly in the style of the Holmul V vases were a number of vessels with figure painting found in a chultun at Yalloch which yielded others belonging to this same ceramic group.<sup>1</sup> A vase from Holmul V and one from Yalloch are painted in two shades of red on a white background. A band of glyphs surrounds the lip, and vertical glyph panels designate the divinities who are shown receiving the homage of a diminutive suppliant. Behind each divinity there is an elaborate design involving a bird-headed serpent resting on the roof of a covered throne in which a jaguar is seated holding an offering. The seat of the throne is a serpent's head and a columnar base represents his body. The scenes depicted on the two vases are identical, although the paintings are not by the same hand. Another vase in the Yalloch collection presents two elaborately conventionalized pelicans done in red upon a white slip with a glyph band running around the top of the exterior. This same bird is used in combination with fish on the vase from Ruin X. Pelicans are found also inside and outside the rim of the flat-bottomed bowl with cylindrical tripod support from Building F, Group I. On the floor of this bowl appears a small suppliant addressing an erect divinity who has at his back the ornate device, observed in the cylindrical vases, which involves the bird-headed serpent and the jaguar seated on a snake throne. Since this bowl combines the design elements of pelican, divinity, and suppliant, the essential chronological and ethnic unity of the other bowls becomes assured, and accompanying vessels must also occupy the same chronological horizon. Into this group, or a little later, fall the tripod bowl from El Cayo, figured by Joyce,<sup>2</sup> and the flat-bottomed bowl from Building F, on the floor of which is also painted a divinity seated on a throne. The inner wall of this bowl is encircled by a glyph band. The Yalloch chultun produced a cylindrical vase adorned by a glyph band and two horrific monsters with trunks, elaborations, perhaps, of the tapir. Another vase from the same place shows a divinity, possibly the god Itzamna, seated on a throne. At the top of the vase is a glyph band and below the figure is a strip representing ollas and bales of cloth that are possibly offerings. This figure is important in connecting the Holmul-Yalloch vessels with the amazing polychrome development of Chamá. But before we pass to this subject, let us consider a collection of bowls, excavated by Gann from Mound 17 in the Rio Hondo in British Honduras, that may have been derived from the Holmul V style of vase painting.<sup>3</sup> These comprise three shallow plates depicting respectively a bird holding a fish, a fish, and a coiled serpent, all showing crude and degenerate draughtsmanship. There are, however, two cylindrical vases, one of which is decorated by representations of three animals, two insects, and a plant, and bears the

<sup>1</sup> Gann, 1918, Plates 23-28. Gordon, 1926, Plates III, XVII, XVIII, XXIV. In the latter press the place of deposit of two of these vessels is erroneously given as the

Bristol Museum. They are now in the Museum of the American Indian, Heye Foundation, New York City.

<sup>2</sup> Joyce, 1927, p. 103.

<sup>3</sup> Gann, 1918, pp. 109-111.



customary glyph band. The drawing is not in the style of Holmul V, but the plant resembles one incised on a vase in the American Museum of Natural History, also depicting a pelican-like bird, and another painted on a vase in the Fenton collection from Guatemala.<sup>1</sup> Possibly fitting into this type is a late vase with entasis from Thompson's digging in the Cayo region.<sup>2</sup> It shows a man accompanied by the same peculiar bird noted above. The other Mound 17 vase has a curious pattern which Gann thinks may be a tree but which might equally be a conventionalized hummingbird. Such a pattern might tie in with the conventionalizations on the plate from Ruin X at Holmul, but it is very doubtful. These vessels from Mound 17 may well represent the penultimate degeneracy of the draughtsman's art in British Honduras. The ultimate is the crude designs on vessels found in Mound 15 near Santa Elena in the same colony.

We have considered now three styles of painting life forms on pottery, the Copan-Salvador-Rio Motagua tradition, the Pusilhá-Uaxactun style, which may have been derived from the Copan school, and lastly, the Holmul V-Yalloch painting which may ultimately have spent its force in northern British Honduras. We have not been able to establish the source from which Holmul V painting was derived. It does not seem to have come from the Copan-Pusilhá tradition, but it may well connect with the fourth great region of figure painting, that of Chamá in Alta Vera Paz, Guatemala.

There are three main types of painting in the Chamá style, but the colors of all embrace the same shades, orange, white, red, black, and yellow. The first type is composed of squat cylindrical vessels with the design framed top and bottom by two bands of red and one of alternating black and white chevrons set on edge.<sup>3</sup> The designs are usually ceremonial scenes in which a chief receives the attention of several individuals, as in the case of the justly celebrated Chamá vase. In this same style single figures like the bat are less commonly shown.<sup>4</sup> Glyphs are not used as decorative bands, but as designative elements for speech or identification near the various figures. The second style involves duller paints but the subjects are the same. Examples are the Nebaj vase, a vase from El Jecaro, Guatemala, and a tall vase depicting a deer ceremony from Calceotok in Campeche.<sup>5</sup> The third style is derived from the first, but instead of a cylindrical vase, we have jars with funnel-shaped necks.<sup>6</sup> The design is seen on the neck, and sometimes a border of black and white chevrons is placed on the shoulder.

The chronological implications of the Chamá polychrome development are problematical. It might have come from Holmul V or it might have evolved from the Motagua Valley polychrome<sup>7</sup> via such forms as the Huehuetenango<sup>8</sup> and El Jecaro<sup>9</sup> vases. Yet the Huehuetenango vase seems instead to have been stylistically derived from Chamá forms, and its figures have the easy grace of those on a vase from the Chixoy River near San Cristobal, shown by Dieseldorff.<sup>10</sup> On the other hand, there are stylistic reasons why figure painting might be late in the Chamá region. The composite silhouette bowls found there might have originated on a Holmul III level, and the cylindrical vases with the same polychrome figures which appear on the funnel-shaped vessels might have

<sup>1</sup> Spinden, 1913, Fig. 79. Gordon, 1928, Plates XXXVI and XXXVII.

<sup>2</sup> Thompson, J. E., 1931, *b*, Fig. 14, *a*.

<sup>3</sup> Dieseldorff, 1904, *a*, pp. 639-644, with commentaries by Schellhas, p. 645, by Förstemann, pp. 647-650, and by Seler, pp. 651-654; 1926, Plate 22. Seler, 1902-15, Vol. 3, pp. 654-669. Spinden, 1913, p. 140. Gordon, 1925, Plates, I, II, VII, VIII. Vaillant, 1931, *a*, pp. 247-248. Mason, J. A., 1927, *b*, pp. 374, 376, 379.

<sup>4</sup> Dieseldorff, 1904, *b*, pp. 665-666. Seler, 1902-15, Vol. 3, pp. 641-653. Gordon, 1925, Plates IX, X; 1928, Plate XXXVIII. Mason, J. A., 1927, *b*, p. 373.

<sup>5</sup> Seler, 1902-15, Vol. 3, pp. 718-729. Joyce, 1927, p. 137. Gordon, 1928, Plates XXIX, XXX. Spinden, 1913, Fig. 193, p. 141. Vaillant, 1927, Fig. 281. Bunker, 1929, p. 104.

<sup>6</sup> Dieseldorff, 1926, Plates 17, 20, 21, Figs. 102, 124.

<sup>7</sup> Gordon, 1928, Plates XXXII-XXXIII, XLIX-LX. Seler, 1904, *a*, Figs. 26-28.

<sup>8</sup> Gordon, 1928, Plates XXVI-XXVII. Mason, J. A. 1927, *b*, p. 375.

<sup>9</sup> Spinden, 1913, Fig. 193.

<sup>10</sup> Dieseldorff, 1926, Plate 16, Fig. 67.

been derived from Holmul V. Dieseldorff describes finding in one grave a funnel-necked jar with painted human figures, a cylindrical vase with black and red meanders on a white slip, a tripod bowl, and a spouted jar with a divinity incised through a white slip. In the Copan and Peten region, incised human figures are very rare, yet in this case the last mentioned jar is associated with one of funnel shape having a human figure painted on the neck. It might be possible that the painting of human figures was first done on cylindrical vases, and this art then transferred to the indigenous funnel-necked jar. Later, these designs might have been changed from a painting to a carving technique.

The resemblance between the seated figure of the "Dieseldorff vase," carved jades from Monte Alban, engraved shells from Tula and Oaxaca, and the carving on the ruins of Xochicalco is highly striking and gives additional though tenuous evidence for dating the Chamá vessels as late. Carved vases with human figures are a very characteristic feature of the art of this area, but most seem to come from Chajcar. The figures engage in scenes and their attitudes are taken from polychrome designs; sometimes these carved figures are painted. They are in the style of the painted vases, or derived from them, but their distribution is wide and extends chiefly west and north into Yucatan and Mexico.<sup>1</sup> An example of the close relationship between the art styles of carved slate and the painted wares is clearly shown on a painted vase from Yalloch, another from Guatemala, and a carved vase from Chajcar, in all of which the old god, seated, is shown in profile.<sup>2</sup>

We have given a number of reasons, on the basis of stylistic evolution, why the polychrome life forms of Holmul might be late. We have also given indications of the connection of these life forms in the Chamá region with Carved Grey Ware forms near Chajcar which fit into a widely spread network of distribution, occurring in the supposedly late "Maya" culture complex of Yucatan and in what are thought to be late Mexican sites. Elsewhere in the Maya region carved figures in pottery occur as isolated examples, at Nakum, Copan, Mound 16 in northern British Honduras, and Pusilhá.

From an assumed "Old Empire," dating from Holmul II through Holmul V, we have obtained internal evidence of the styles which develop into Carved Grey Ware and the "New Empire" of Yucatan. At the same time, the distribution of this Carved Grey Ware has brought us into contact with Mexican influences. Now, although Mexican civilizations are habitually considered by modern Maya students to be very young, and at the same time undatable, it might be possible, through associated trade wares, to find a fixed point in Mexican history, and with these external dates to work backward into that limbo wherein the "Old Empire" dies and the "New Empire" is born. Furthermore, were it possible to find definitely Maya wares that were traded into the Mexican area and the reverse, something might result to cross-date Mexico and the Maya area. This actually occurs in the case of Plumbate pottery and two probably Mexican wares, Engraved Red and Fine Orange.

Plumbate Ware has been found at only one dated Maya site, Copan, where four pots

<sup>1</sup> Dieseldorff, 1926, Plates 5, 32, 36, 37, from Chajcar; Plate 14, Figs. 60, 61, Uxmal, Yucatan. Spinden, 1913, Fig. 63, Coban (is the same as Dieseldorff, 1926, Plate 5, Chajcar); Fig. 184, e, Copan; Fig. 186, Calceotok, Yucatan (cf. Vaillant, 1927, Fig. 291); Fig. 185, Peto, Yucatan (cf. Gordon, 1928, Plates XLIV, XLV, between Sabacche and Ticul, Yucatan); 1915, Fig. 72, Salvador. Seler, 1904, a, Fig. 19, a; 1911, Plate X, Acanceh, Yucatan. Hirtzel, 1925, Figs. 14, 15, Guatemala. Gordon, 1898, Fig. 12, Guatemala; Fig. 13, Copan; Fig. 11, Uloa Valley.

Vaillant, 1927, Fig. 325, Uxmal; Fig. 288, Sotuta, Yucatan. Hamy, 1897, II, Plate XXVII, 84, Ticul; Plate XXVII, 88, Jaina (cf. Spinden, 1913, Fig. 187). Thompson, 1927, a, Fig. 12, Tekax, Yucatan. Gamio, 1926-27, p. 221, Maxcanu, Camp. Strebel, 1885, Vol. I, Plates V-18, XIV-15, Ranchito de las Animas, Vera Cruz. Batres, 1902, Plate 22, Monte Alban, Oaxaca. Mayer, 1851-52, Vol. 2, p. 268, Tula Hidalgo.

<sup>2</sup> Gann, 1918, Plate 23. Gordon, 1928, Plate XLI, XLII. Dieseldorff, 1926, Plate 32, Fig. 170.



were found in Tomb 10.<sup>1</sup> On the basis of a ladle and incense jar also in the tomb, these bowls connect with material from the vault of Stela M, which is the chief ceramic indicator for Copan II and bears the date 9-16-5-0-0. Another Plumbate jar was found in the general digging. No specimens of Plumbate Ware have been encountered to date in either Uaxactun or Holmul, nor have any examples been found in British Honduras. In spite of the "Old Empire" date of Copan, specimens seem to have been distributed everywhere in Middle America except the Peten and British Honduras. Lothrop gives Tula, Nicaragua, and Panama<sup>2</sup> as the southern limits of the ware, but the Tula example is an evolved form, possibly representing the Mexican god, Tlaloc. Plumbate seems most common in Salvador where the greatest range of forms and quantity of specimens are found. The Uloa Valley also produced some. Many examples of this type have been encountered in Guatemala, particularly in the Alta Vera Paz-Coban region. The same ware is found in Mexico, especially in the Central Highlands, and its distribution ends on a line running from Tepic<sup>3</sup> to Tula, Hidalgo, to central Vera Cruz. The writer's work in the valley of Mexico during the season of 1931-32<sup>4</sup> showed Plumbate Ware to be absent from the pyramid site of San Juan Teotihuacan but present in a culture found at the adjacent town of San Francisco Mazapan. This Mazapan culture is post-Teotihuacan and pre-Aztec in date, and the ornate Plumbate vessels, figured by Batres (1906 Appendix) and Seler (1915) as coming from Teotihuacan, really belong to this archaeological horizon. On stylistic grounds, the simple Copan forms ought to be earlier than the ornate Teotihuacan examples, but the weakness of Middle American archaeology makes it impossible to correlate chronologically Teotihuacan and the date 9-16-5-0-0 of Stela M.

At the Isla de Sacrificios have been found a number of vessels of a special kind of Fine Orange Ware,<sup>5</sup> vessels of Plumbate Ware, and vessels wherein Plumbate and Fine Orange clays have been mixed to make pots with a lustrous surface that varies in direct proportion to the amount of Plumbate clay in the admixture.<sup>6</sup> At Chichen Itzá, Yucatan, sherds of Plumbate Ware and this same type of Fine Orange Ware occur in débris of the Mexican occupation.<sup>7</sup> Imitations of Fine Orange vases in a red lacquer clay were found in a cache of very late date at the Temple of the Warriors at the same site. The authorities agree on the Mexican occupation of Chichen as having taken place between 1191 A.D. and 1450 A.D. Therefore, the Isla de Sacrificios Fine Orange and Plumbate can be dated as of this epoch. Associated with Fine Orange at Chichen Itzá is an Engraved Red Ware, presenting patterns which may have been broken down from others more ornate. The Fine Orange Ware and the Engraved Red Ware vessels have often the distinctive form of a pear-shaped or cylindrical body upon a high annular base. Such vase forms of Fine Orange Ware occur at Tlaxcala, at Uaxac Canal, Guatemala, in Yucatan, at Palenque, at Yaxchilan (associated with Engraved Red Ware), and in Salvador.<sup>8</sup> Another style of Fine Orange which is modelled into various shapes, anthropomorphic and

<sup>1</sup> Saville, 1916, Plate I, pp. 421-426, asserts that the vessels came from Tomb 1, but cf. Owens, who says Tomb 10, and gives different objects from Tomb 1, pp. 29 and 30.

<sup>2</sup> I do not know the location of the Panama specimen. According to H. B. Roberts, no examples exist in the National Museum at Panama, and neither Holmes nor McCurdy figures specimens. Lothrop, 1926, *a*, pp. 111, 115, 116, 395-397.

<sup>3</sup> Lumboltz, 1902, Vol. II, pp. 295-299.

<sup>4</sup> A preliminary paper on this work has appeared in the Proceedings of the National Academy of Sciences, Vol. 18, No. 7, pp. 487-490, July, 1932.

<sup>5</sup> There are many regional types of Fine Orange Ware

but I refer to the specific Isla de Sacrificios types and shapes.

<sup>6</sup> These vessels may be seen in the collections of the British Museum. Illustrations of Fine Orange shapes are shown in Joyce, 1914, Plate XVIII, Fig. 10, Joyce, 1927, p. 113, No. 5; and of Plumbate, Joyce, 1914, Plate XVIII, Figs. 2, 5, 8. Seler, 1915, *b*, Fig. 197. Also, Nuttall, 1910, Plumbate, Plate XIII, E No. 931, F No. 926; Fine Orange, Plate XI, *b*, No. 957; Nepean, 1844, Birch, 1844 (especially pp. 140-141); and Vaillant, 1927, Fig. 384.

<sup>7</sup> Vaillant in Morley, 1926, pp. 271-273; 1927, pp. 114-130.

<sup>8</sup> In collections of American Museum of Natural History, 30.0-2333.

otherwise, occurs at Mayapan, at Chichen Itzá in Yucatan, and at Santa Cruz Quiché in Guatemala.

Engraved figure vases of Red Ware like those mentioned above as occurring at Yaxchilan and Palenque with Fine Orange, give other indications that its chronological position is late. It is probably the ancestor of those carved Red Ware vases at Chichen Itzá which, although having often similar shapes, are decorated in pure design. It occurs at the same sites in Yucatan with Carved Grey Ware bowls, on which the figures appear to be degenerations from the Chajcar type.<sup>1</sup> At Labna Engraved Red Ware is associated with Carved Grey Ware vessels which lack human figures but retain glyphs. Engraved Red Ware is also found sporadically in Salvador,<sup>2</sup> in the Department of Quiché Guatemala,<sup>3</sup> and in a cave in British Honduras in association with a black-on-white bowl indicative of Holmul V or later chronological position.<sup>4</sup>

Closing up the final link in this chain is the association of a Carved Gray Ware vase without glyphs and a Plumbate animal effigy vase found at Progreso, Yucatan.<sup>5</sup> Other Plumbate effigy vases were found at sites yielding Yucatan Maya pottery elsewhere on the Peninsula.<sup>6</sup> Thus we find Fine Orange associated under late circumstances with Plumbate and Engraved Red Wares; but Engraved Red and Plumbate pottery also occur at the same sites with degenerate types of Carved Gray Ware. Carved Gray Ware with human figures seems to have been derived from the painted vases of Chamá which we judged late on the Holmul evidence. Holmul V and Engraved Red Ware connect roughly through the association of a black-on-white bowl and an Engraved Red Ware vase in a cave in British Honduras. Such evidence cannot be said to mean coincidence of date, but rather a position coeval with the period of the rise of the Nahuatl tribes and decline in cultural importance of the Maya groups. Yet the data can be held to indicate that, on the external grounds of the interlocking of trade wares, the Chamá and Holmul V picture vases are as late as they appeared to be on the internal evidence of the development of their draughtsmanship.

Since none of the painted figures on the vases under consideration resembles very closely the styles of the carving on stelae found in the Peten, we have not pressed this line of comparison. Furthermore, the absence of carved stelae at Holmul renders such an equation impossible. Consequently, we have had to follow the tortuous and insecure path of analyzing the artistic styles almost purely from the point of view of ceramics. Yet, a short discussion of the position of Holmul ceramics in terms of absolute time should be given for what it is worth, as a means of bringing the problems of Maya ceramics into some sort of agreement with the previous research on the history of the Maya, based on the calendar system.

The chronological position of Holmul V pottery tends to fall at the close of the so-called Great Period, 10-0-0-0-0, rather than at the beginning, 9-15-0-0-0. The first figure paintings on Maya pottery, according to the present data, were associated with Stela I, 9-12-5-0-0, and Stela M, 9-16-5-0-0, at Copan, and are not qualitatively comparable with the figure painting of Pusilhá, Uaxactun, or Holmul. Since the mass of pottery decorated in pure design at Pusilhá is derived from that of Copan, and since there is no evidence of an architectural nature at Pusilhá to indicate a high autochthonous art, it seems logical to assume that evolution rather than invention caused the

<sup>1</sup> Hamy, 1897, Part II, Plate XXVII, Figs. 87-89, Jaina, Campeche. Hamy, 1897, Part II, Plate XXVII, Figs. 84-85. Charnay, 1887, p. 375. Collections of the American Museum of Natural History, Nos. 30-11514-15, in Vaillant, 1927, Figs. 318 and 319, Ticul.

<sup>2</sup> Habel, 1878, p. 35. Vaillant, 1927, Fig. 54.

<sup>3</sup> Gordon, 1925, Plate IV. Mason, 1927, p. 371.

<sup>4</sup> Joyce with Gann, Gruning, and Long, 1928, Plate XXXIII, Fig. 3, p. 350.

<sup>5</sup> Carrillo y Ancona, 1885, pp. 275-276 and Plate.

<sup>6</sup> Salisbury, 1890, pp. 358-359 and Plate.

creation of these life forms; and evolution implies the lapse of time. Consequently, computation of the time, whether it involved a long or a short period for these new and beautiful forms to arise, brings us close to the tenth cycle and the end of the "Great Period."

The Holmul V life forms are in a style identical with that of Yalloch, and the Holmul-Yalloch forms occupy a position midway between those of Pusilhá-Uaxactun and of Chamá. The Chamá forms lead into the Yucatan Maya developments of carving instead of painting human figures, and this carved style seems to be in contact with Mexican ceramics which in Yucatan appear late. This connection is based upon a cross-checking of trade wares and a typological evolution. Painted figures at Chamá seem to have led to carved figures. Vessels with carved figures are associated with vases with glyphs carved in the same style. These forms, in turn, have been found associated with a widely traded Red Ware vase form which has a carved decoration. This Red Ware pottery has been found, with degenerate decoration, in association with a Fine Orange Ware identical with Isla de Sacrificios forms, and this Fine Orange Ware occurs constantly in the débris beds of Mexican Chichen Itzá, which was occupied from 1201 to 1458 A.D.

Again evolution means time, so that we must assume for the Chamá vases a date anterior to 1200 A.D. If we follow Spinden and date the close of the Great Period, 10-3-0-0-0, as July 6, 629, we have an enormous space of time in which the decay of painted life forms could have taken place. If we follow the Thompson-Martinez correlation, 10-3-0-0-0 gives us May 5, 889. This later date agrees better with the evidence of Maya artistic influence seen in the jades of Monte Alban and Teotihuacan, in the vases of Monte Alban and Tula, and in the sculptures at Xochicalco. It also brings the era of Plumbate Ware in Mexico, and of the Fine Orange and Engraved Red Wares in Guatemala, ascribable, perhaps, to the Nahua infiltration of the tenth to twelfth centuries,<sup>1</sup> into closer harmony with the decay of the "Old Empire" and the abandonment of the great southern cities.

If we have established an era for the closing of Holmul V ceramics somewhere in the neighborhood of the eighth to the tenth centuries of our era, we should endeavor to make some sort of beginning. If we consider that Holmul I pottery was made at the time of the first dated monument, no matter what correlation we use, we have the difference between 10-3-0-0-0 and 8-14-10-13-15, or about five hundred and sixty-one years, to explain away. The differences between Holmul I and Holmul V pottery make this long period of time conceivable for such an evolution, although one cannot affirm positively on the existing data that this is so. Nevertheless, the slow change of forms during Holmul III gives additional evidence of a long lapse of time.

**Digest of Types of Pottery.** HOLMUL I: Bowls with tetrapod support; bowls with concave bottom; spouted pot forms; sparing use of complicated design forms; pot-stands.

HOLMUL II: Transition into the basal form of composite silhouette bowl; appearance of scutate covers with animal heads; pot-stands.

HOLMUL III: First Phase, absent. Second Phase, development of the composite silhouette bowl with basal bevel; scutate covers with well-modelled animal heads; few examples of polychrome design; virtual absence of the leg as a support. Third Phase, fall of undecorated black lacquer and rise of polychrome decoration; scutate covers with effigy knobs in polychrome; simple forms of bowls. Fourth Phase, tendency for poly-

<sup>1</sup> Lothrop, 1926, a, p. 5. Tozzer, 1927, Figs. 3-4. Joyce, 1920, pp. 10-12, 366-367, Appendix III. Lothrop, 1927, a, pp. 215-218.



chrome pottery patterns to degenerate and simplify; rise of undecorated vessels and new forms, such as modelled effigy covers and low cylindrical jars; pot-stands.

HOLMUL IV: Continuance of degenerate polychrome patterns and tendency for the sharply defined composite silhouette bowl with basal bevel to lose its clarity of outline.

HOLMUL V: New styles like tall cylindrical vase and flat-bottomed bowls with cylindrical tripod support; use of glyphs and life forms as decorative elements.

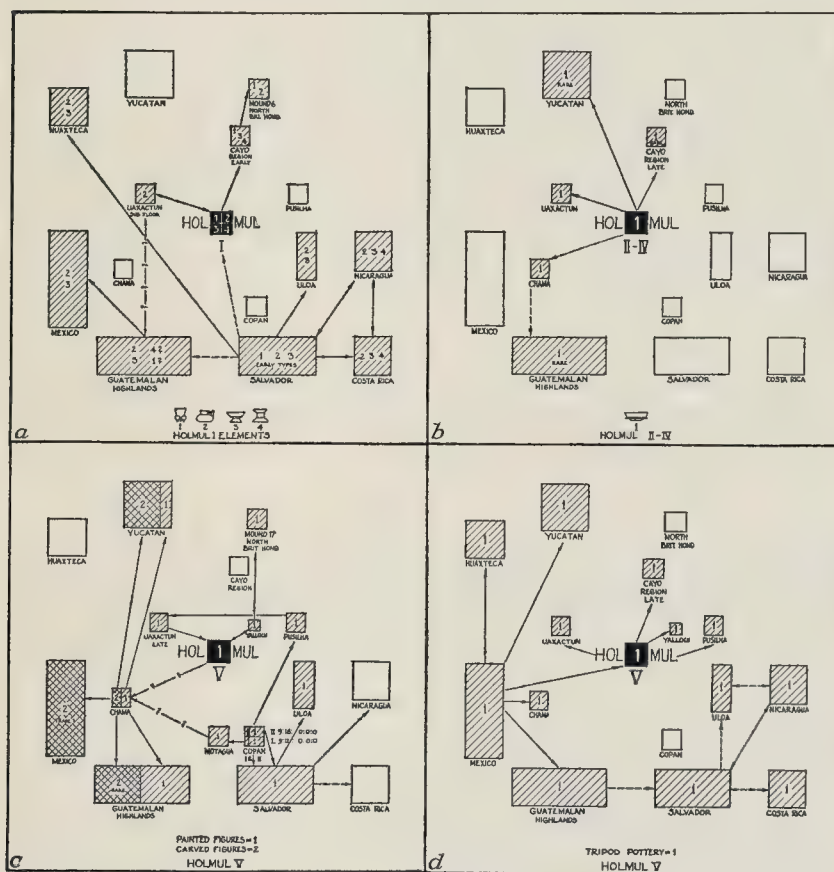


FIG. 26. Diagram showing distribution of Holmul pottery types: *a*, Holmul I; *b*, Holmul II-IV; *c*, Holmul V, painted and carved figures; *d*, Holmul V, tripod pottery

Holmul I pottery does not resemble the sub-floor ceramics at Uaxactun nor the vessels of the Huastec, but is far more closely connected with early forms from Salvador. While qualitatively it might be considered on the "archaic" horizon, ethnologically it has no connection with the Early Cultures of the Valley of Mexico. The forms fit into a complex of shapes that are widely distributed through Central and South America, but are not so characteristic of the Valley of Mexico (Fig. 26, *a*).

<sup>1</sup> Painted figures have been found in the Cayo region (p. 78). At the time this diagram was made, J. E. Thompson, 1931, *b*, was not yet published.



Holmul II pottery indicates the transitional steps from Holmul I to Holmul III ceramics. The Holmul III vessels, in shape and composition, belong to the same ceramic group as the above-floor pottery at Uaxactun, thus dating Holmul III ceramics as "Old Empire." Other forms similar to Holmul III are found in the Chamá region of Guatemala (Fig. 26, *b*). Holmul IV ceramics are degenerations from the skillful manifestations of the potter's art seen in Holmul III. Consequently, although marked off into three stages, Holmul II-IV may be considered as a single period for the purposes of broad comparison.

During Holmul V, new forms and styles of painting appear. There is an identity between Holmul V and Yalloch ceramics. The use of life forms in the vase painting suggests connections with Chamá, Guatemala, Pusilhá, British Honduras, and Uaxactun (Fig. 26, *c*). Since the Pusilhá and Uaxactun styles are very closely connected, and since many of the Pusilhá forms are derived from Copan, that site may well have been the inspiration also for Holmul V painting. From calendric evidence, Pusilhá painting is late "Old Empire" and, on the basis of stylistic evolution and association with Mexican wares, Chamá pottery is also late. Therefore, Holmul V-Yalloch pottery, which stylistically is between Chamá and Pusilhá, should be equally late. The infiltration of tripod pottery in the Peten seems to occur on this horizon (Fig. 26, *d*).

G. C. V.

#### POTTERY TOOLS

Pottery is rarely used at Holmul for implements other than pottery vessels. A few worked sherds were found that might have been used as counters (Plate 32, *dd*, *ff*, *gg*), and one which occurred in Room 15 of the Holmul V Period Building A, Group III, was perforated as if for use as a spindle whorl.

#### FIGURINES

A pair of legs that might have come from a figurine or a small ladle was found in a cache in the mound covering Building B, Group II (Plate 32, *bb* and *cc*). A small clay bird head appeared in the fill of Building E, Group II, that might have adorned a whistle or a cover like those on the cylindrical vases with Skeleton 9, Building B (Plate 32, *ee*). Aside from these fragments, there are no examples of anything approaching a figurine at Holmul.

The conspicuous absence of clay effigies from Peten-Maya sites is very striking. Small clay figures are found under the plaza at Uaxactun, and the features of some approach the "Maya" type. Figurines, hand-made and mould-made, with or without Maya features, occur in Salvador, but they are relatively absent at Copan which influenced so strongly its ceramics. In the Uloa Valley, which seems to derive so much from the pottery of Salvador, figurines are also common. Again at the Finca Arevalo, on the Highlands of Guatemala, figurines are found, hand-made in crude modelling and in various transitional styles which terminate in "Maya" forms. The region of Coban is another prolific source for figurine manufacture and many specimens, apparently inspired by the same tradition, were yielded by the excavations at Quirigua and Lubaan-tun in British Honduras.<sup>1</sup> Figurines in the form of birds are found at Baking Pot, British Honduras. In northern British Honduras a very special type of figurine is found which is, in all probability, of late date.<sup>2</sup> This same style is found in debris of the Maya

<sup>1</sup> Hewett, 1911-12, Plate XI, upper.

<sup>2</sup> Gann, 1918, Figs. 15, 16, 18, Plates 8, 9, 11, 22; 1900, Plates XXXIII-XXXVII.

reoccupation of Chichen Itzá.<sup>1</sup> Along the banks of the Usumacinta River a very lovely style of clay sculpture occurs.<sup>2</sup> At Labna, Yucatan, Jaina, Campeche, and at other points in the Peninsula, figurines are found that tend to tie in with the clay plastic of southern and central Vera Cruz, of which the Totonac "laughing heads" are a branch.<sup>3</sup>

The chultunes of Nakum, which produced late pottery, yielded the only other figurines from the Peten region, and these are more in the Coban than the Uaxactun tradition. It would seem, therefore, that in almost every case where figurines occur in the Maya area they are of late date and are not indigenous to the "Old Empire" Maya of Copan and the Peten. They seem to have occurred, however, quite frequently in some Maya sites before the crystallization of the characteristic calendar and religious culture elements. The plastic styles of these early examples are distinct, and only by virtue of their crudeness and their manufacture by hand could they be equated with the Early Cultures of the Valley of Mexico. On stylistic grounds they are completely different, with strong regional characteristics.

The Huastec figurines with their characteristic white slips might have derived from Guatemala, Salvador, or, less probably, the Valley of Mexico.<sup>4</sup> Were it possible to date the figurines of the Uloa and the Huasteca, the situation in Middle American archaeology would be much clarified, for we would then know whether we were dealing with genuinely old material or with a late persistence of early forms. Yet, the culture of the Huastec is so little affected by the culture complexes of the Copan, Peten, and Yucatecan Maya, that the presence of figurines in this group is merely mentioned to complete the distribution of clay figures in the area occupied by Maya-speaking people.

G. C. V.

#### STONE TOOLS

Stone tools were infrequently found, possibly because such utilitarian objects were deemed unworthy as mortuary offerings. Knives of flint were found with the Building B, Group II, burials, in Ruin X, and in Building B, Group III. Celts and picks of the flaked, not the polished, type were found in Room C, Building A, Group I. Three spindle whorls of limestone appeared, two of the Holmul V period in Building F, Group I, and with Skeleton 1, Ruin X; the third was with Skeleton 5 of the Holmul III period. All three specimens are much alike.<sup>5</sup>

Several blades of obsidian were found that had been pressed off some original core (Plate 32, *g-n*). None of these pieces had been worked beyond this simple process. Three blades which were unbroken and might have been lancets occurred in the foundation deposit of the mound covering Building B, Group II (Plate 32, *o-q*). They are very thin and terminate in sharp points. The source of this material must have been the volcanic region of the Highlands of Guatemala, since it is not native to the limestone region of the Peten. Obsidian flakes are found widely distributed in the lowland Maya area extending to Copan, British Honduras, and Yucatan. Worked obsidian is not especially common in the Maya area, Le Plongeon's find at Chichen Itzá being its principal

<sup>1</sup> Vaillant, 1927, Fig. 362, pp. 60-61.

<sup>2</sup> Batres, 1888, Plates I-III. Tozzer, 1927, to face page 213. Vaillant, 1928, *b*, pp. 562, 567. Spinden, 1913, Plate 17, Figs. 5, 6, 8. Holmes, 1895-1897, Plate XXIII. Seler, 1912, Fig. 17. Collections of the American Museum of Natural History. Hamy, 1897, Part 2, Plate XXVI, Figs. 78-80. Thompson, J. E., 1927, *a*, Fig. 10.

<sup>3</sup> Batres, 1888, Plates I-II. Hamy, 1897, Plate XXVI, Figs. 81-83. Spinden, 1913, Plate 17, Figs. 4, 7, 9-12;

1928, Plate XXX. Thompson, E. H., 1897, *b*, Plate XII, Labna. Thompson, J. E., 1927, *a*, Fig. 10. Dieseldorff, 1926, Plate 12, Yucatan; Plate 14, Figs. 54-59. Batres, 1908, *b*, Plates 45, 51, 56. Seler-Sachs, 1922, Plates VII-XI. Krickeberg, 1925, Figs. 39-48. Hamy, 1897, Plate XIX.

<sup>4</sup> Vaillant, 1930, *a*, Plates XXXIII-XXXVI.

<sup>5</sup> Ricketson, 1929, p. 14, reports a limestone spindle whorl at the presumably late site of Baking Pot.

occurrence, although worked fragments turned up beneath Stela F, Pusilhá, and spear heads were found at Copan.

Jade is found chiefly in the form of beads and ear plugs. The beads are either spherical or cylindrical and are like those most commonly occurring on the Highlands of Guatemala and of southern Mexico as far north as Guerrero (Plate 33, *b-x*). The ear plugs are hollow with a dorsal neck and a broad ventral flare (Plate 33, *aa-dd*). Most of the specimens came from Skeletons 6 and 1. This form occurs at several points in the Maya area,<sup>1</sup> and the same type of earring has been found by the writer associated with the Late Zacatenco-Early Ticoman debris at Zacatenco in the Valley of Mexico, and in an early Zacatenco grave at El Arbolillo in the same region. Conspicuous by their absence are



FIG. 27. Shells: *a*, and *c*, drawings of conch shell, Plate 34, *f*; *b*, drawing of Plate 34, *j*

the richly carved jades of the highlands of Guatemala and southern Mexico. The only pieces of this type to occur definitely under "Old Empire" conditions were found at Copan, one under Stela 73 and another, by Galindo, in a tomb. The Zacatenco and El Arbolillo evidence of the hollow jade ear plug is important in establishing the utilization and manufacture of jade in relatively early times.

Many fragments of iron pyrites were found at Holmul, not only in the general digging, but also with the Holmul III burials (Plate 32, *r-z*). It was frequently used for filling teeth, which were also filed (Plate 32, *a-f*). This practice has been noted at several localities in the Maya area and in Mexico as well,<sup>2</sup> but Saville's paper gives a full dis-

<sup>1</sup> Gordon, 1896, pp. 31-32, Tomb 4, Copan. Gann, 1918, Fig. 57, *b*, Mound 17, northern British Honduras. Mason, G., 1928, p. 32, Figs. 19-20, Cave C, Rio Frio, El Cayo district. B. H. Mason, J. A., 1927, *a*, p. 70, Highlands of Guatemala. Joyce, 1927, Plate XXI, *b*, Fig. 2, Lubaantun.

<sup>2</sup> Gordon, 1896, p. 30, cut 32, Tomb 1, Copan, filed and inlaid teeth; pp. 26 and 27, Skeletons 5, 8, 17, 25, 26, and 36, filed and inlaid teeth. Gann, 1918, p. 71, Mound 5, northern British Honduras, filed teeth; p. 109, Mound

17, inlaid teeth. Thompson, J. E., 1931, *b*, Plate XLVII, southern Cayo region, filed and inlaid teeth; 1932, jade-inlaid teeth. Thompson, E. H., 1897, *a*, Fig. 16, Caves of Loltun, Yucatan, filed teeth. Ricketson, 1925, pp. 396 and 397, Baking Pot, central British Honduras, filed and inlaid teeth; 1931, Plates 9, *b*, 18, 23, *c-d*, filed and inlaid teeth; 1925, p. 385, Palenque Chis, filed and inlaid teeth. Blom, 1926, Vol. I, Fig. 190, Yoxiha, Chiapas. Hamy, 1882, 1883, Huastecs, Vera Cruz. Krickeberg, 1925, Figs. 39-41, 462 and 463, Tototnac. Strebel, 1885-89,



cussion of the subject and an exhaustive bibliography.<sup>1</sup> In most places jade or hematite was used.

Fragments of mineral were found with Skeleton 12 that are most probably iron pyrites (Plate 32, *aa*). They might have formed mosaic mirrors such as occur in British Honduras, Guatemala, and northward into Mexico. Solid pieces of iron pyrites have also been used as mirrors, but such specimens were not found at Holmul. They are more common to the north.<sup>2</sup>

G. C. V.

#### SHELL

Shell was extensively employed at Holmul for the manufacture of ornaments. Although most of the specimens had been worked, a few received very little preparation. Among these was a conch shell, split vertically with its edges nicely smoothed (Plate

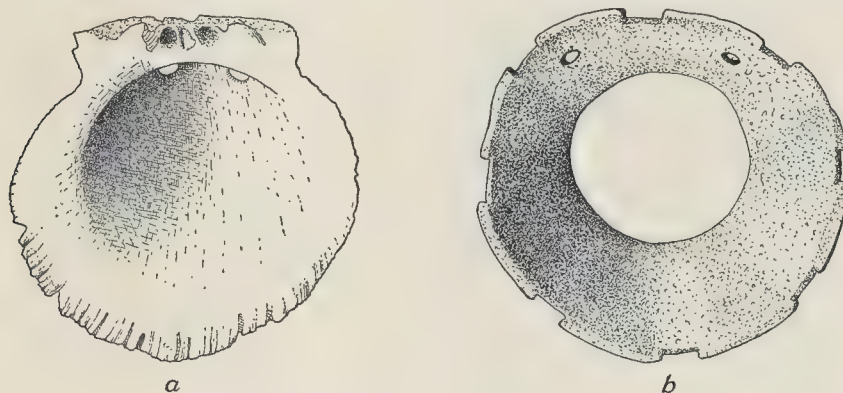


Fig. 28. Shell ornaments: *a*, drawing of Plate 34, *g*; *b*, drawing of Plate 34, *h*

34, *f*; Fig. 27, *a* and *c*). A piece of jade from the Cenote of Sacrifice at Chichen Itzá depicts in miniature a similar treatment of a conch shell. Other shells, mainly bivalves, were utilized as ornaments after the boring of suspension holes without additional preparation (Plate 34, *a*, *b*, *g*, *j*, *k*; Figs. 27, *b*, and 28, *a*). These might have been worn as gorgets.

The majority of shell specimens had been shaped for specific purposes. A great number of disc beads were recovered from the neighborhood of the burials in Rooms 2

Vol. I, Plate VIII, Fig. 18, Vera Cruz, filed teeth; Vol. II, Plate IX, Fig. 14, inlaid teeth. Batres, 1902, Fig. 3, Monte Alban. Lumboltz, Vol. II, pp. 426 and 427, Zacapu, Michoacan, filed teeth. At Gualupita, Cuernavaca, filed teeth occurred on an Early Culture horizon, and examples were also found in the Mazapan culture at Teotihuacan.

<sup>1</sup> Saville, 1913, pp. 377-390, especially pp. 378-379, Argentine to Arizona, filed teeth; pp. 391-394, a critical bibliography.

<sup>2</sup> Ricketson, 1925, p. 394, quoting Price, Kendall, southern British Honduras, disc mirror. Seler, 1904, *a*, p. 87, Chixoy Valley, mosaic mirrors, reported from Dieseldorff in "Zeitschrift für Ethnologie," 1893, Vol. 25, p. 377. Thompson, E. H., 1897, *b*, p. 16, Chultun 23, Labna, Yucatan, solid mirror; 1931, pp. 275 and 276,

Fig. 8, *a*, southern Cayo region, mosaic mirror. Joyce, 1929, pp. 449 and 450, Plate XLVI, Big-tree Mound, Lubaantun, British Honduras, mosaic mirror. Gann, 1918, p. 92, Mound 11, northern British Honduras, solid mirror. Mason, 1927, *c*, Chixoy River, Guatemala, mosaic mirrors. Saville, 1922, pp. 50 and 51, Cuilapa, Oaxaca, mosaic mirror; pp. 52 and 53, Iguala Guerrero, disc and mosaic mirrors. Vaillant, 1928, *b*, p. 275, Vera Cruz, possibly the back of a mirror; p. 274, possibly Vera Cruz, obsidian mirror. Collections American Museum of Natural History, eastern Queretaro, disc mirror. Gamio, 1922, p. 218, Teotihuacan, disc mirrors. Seler, 1915, *c*, p. 431, Teotihuacan, disc mirrors. The distribution of mirrors in the Southwestern United States is not germane to this discussion.



and 3, Building B, Group II (Plate 34, *e* and *i*). Rings of shell, some with their exterior surfaces carved, made another group of ornaments (Plate 35, *g*, *x*, *bb*, *cc*; Plate 34, *h*; Fig. 28, *b*). Some may have been finger rings, others gorgets. A number of irregular fragments may have been used in inlay work or have been counters. Button-like discs of shell, with and without scalloped edges, also were found (Plate 35, *q*, *aa*, *hh*). Distributions of shell ornaments are hard to work out because such minor specimens are rarely published, but Gann found one of these buttons in Mound 16, northern British Honduras, and a shell ring was found at Lubaantun. A very interesting grouping of carved shell is shown (Plate 35, *a*) which combines a number of ornaments into a design. Such a combination sewn to a dress, with an embroidered background, would have resulted in a



Fig. 29. Carved shell discs: drawings of Plate 36, *d* and *f*

very attractive adornment. The volutes and the carved discs are in the Maya tradition, but the triangular object recalls in its shape the *tegi pudenda* of Marajo.<sup>1</sup> A tiny pendant representing a ribbon knotted around an object was also of interest (Plate 36, *h*).

The most striking objects of shell were two discs, each charmingly engraved with a head in profile (Plate 36, *d* and *f*; Fig. 29). The heads are identical, even to the details of the headdress and the labrets at the mouth corners, but they are in reverse design. The faces do not show the emphasis in the nose and lips of the more stylized Maya draughtsmanship, but are drawn with the sensitive exactitude of a miniature painter.

The olivella shell from the Gulf Coast of Mexico, which is so common in Yucatan and the Highlands of Mexico, is represented at Holmul by a single bead, although it does occur in the probably late site of Lubaantun and under the floors of the E Group at Uaxactun.<sup>2</sup> This condition might be significant in a study of the commerce of the Maya.

The presence of so much worked shell at Holmul raises the question of the source of manufacture of the raw product. In view of the isolated character of the site, during Periods II-IV, as attested by the pottery, it seems strange to observe shell as the only evidence of trade relations with a coastal people. It is possible that most of British Honduras was of relatively low culture until the closing days of the "Old Empire," and the manufacture of the shell into ornaments was done at Holmul. On the other hand,

<sup>1</sup> Nordenskiöld, 1930, Plate XVI.

<sup>2</sup> Information supplied by Mr. and Mrs. Oliver Ricketson.

high cultures might have existed on the seaboard contemporaneously with Holmul, while only their ornaments were sought by the inland folk. It is certainly true that there is almost no evidence of Holmul II-IV pottery on the coast, so that social relations cannot have been very close.

G. C. V.

#### BONE, HORN, AND TEETH

Bone is fairly plentiful, both in its worked and unworked states. Unworked bone objects seem to occur principally as offerings. Notable are the offerings of deer tarsi with Skeletons 13, 14, and 5 (Plate 36, *a*), the collections of perforated jaws on the floor

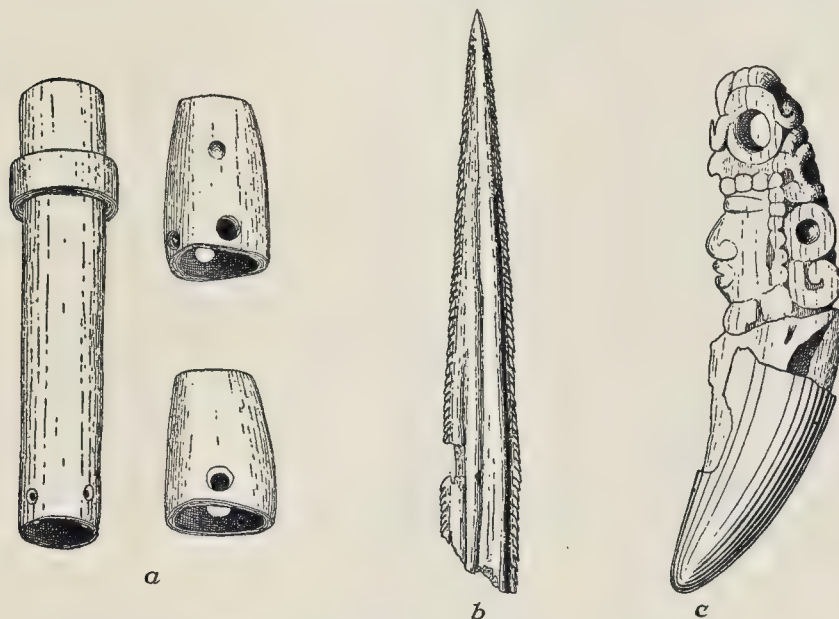


FIG. 30. Hollow bone objects, barb of sting ray, and carved jaguar tooth: *a*, drawing of Plate 36, *i*, *j*, and *k*; *b*, drawing of Plate 34, *d*; *c*, drawing of Plate 36, *p*

of Room 2, Ruin B, Group II (Plate 36, *b*), and the small animal skulls with Skeletons 6 and 9 (Plate 36, *c*). Deer were unquestionably of ceremonial importance to the Maya. They are frequently shown in the Codices;<sup>1</sup> there are the deer effigy pots with Skeleton 1; and a deer sacrifice shown on a painted vase from Calcetok, Yucatan. The precise equivalent of perforated jaw segments as mortuary furniture is unknown to the writer, but Habel describes pointed teeth in a Salvador grave, and rodent teeth were found in two graves at Ticoman in the Valley of Mexico. The interment of animal skulls in a grave is paralleled at Copan, where two beautifully engraved peccary skulls were exhumed from Tomb 1. Animal bones were also found in Tombs 2 and 3 and in Graves 19 and 20 of Mound 36, and jaguars were buried in Mounds 4 and 5. Gann reports finding

<sup>1</sup> Tozzer and Allen, 1910, pp. 347-351, Plates 30-32.

animal bones also in graves in British Honduras. Ceremonial caches containing birds and bats were found at Chichen Itzá, and other offerings were uncovered at Uaxactun.

Some hollow bone objects appeared that are perforated at the end, and one, longer than the others, has a detachable ring slipped over it (Plate 36, *i, j*, and *k*; Fig. 30, *a*). One carved bone bead was discovered (Plate 36, *n*). Awls made of the barbs of the sting ray are very common (Plate 34, *d*, Fig. 30, *b*). One barb, broken at the end, bears in-

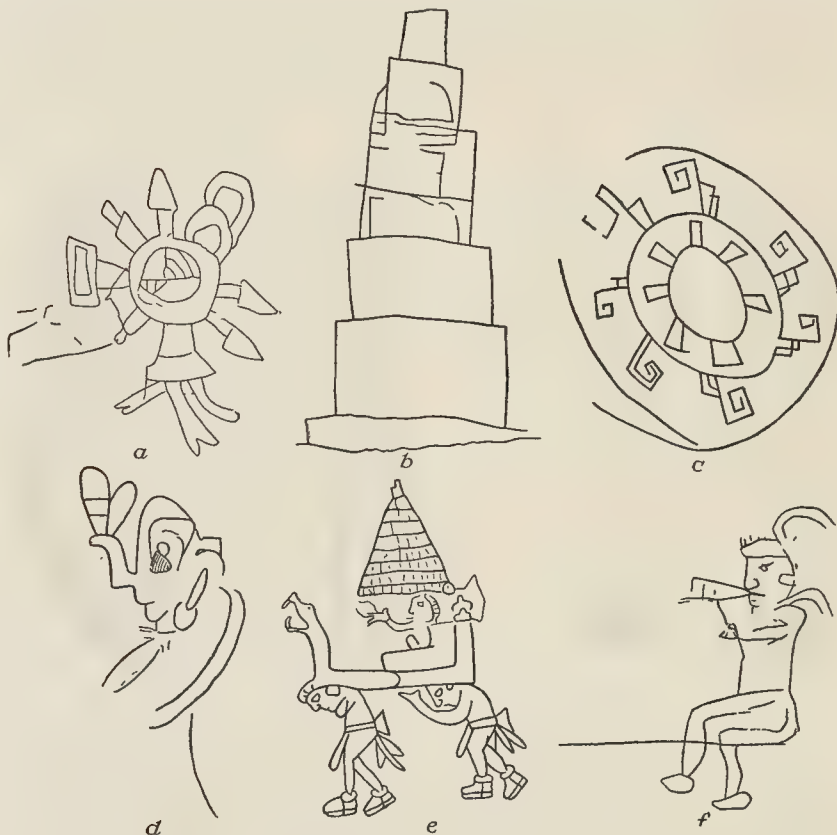


FIG. 31. Graffiti incised on plaster of Room 1, Building A, Group II

cised upon it a glyphic inscription which, apparently, is not a date (Plate 36, *e*). Owing to perishability, carved bone is rare in the Maya area, only a few specimens having survived,<sup>1</sup> some of carved antler (Plate 36, *m* and *o*).

Several specimens of carved teeth, perforated at the root, were recovered from near Skeleton 6, Rooms 1-2, Building B, Group II (Plate 36, *l* and *p*; Fig. 30, *c*). They have been made from the canine teeth of jaguars and crocodiles, and the roots of the teeth alone

<sup>1</sup> Spinden, 1913, Fig. 60, p. 58. Gann, 1918, Fig. 82. This carving seems in the Santa Rita style of draughtsmanship, cf. Gann, 1900.



are carved since the enamelled portion would have been too hard for the cutting instruments of the Holmuleños. One, carved in the form of a human head with headdress, is very like a specimen found by Batres at San Juan Teotihuacan, Mexico,<sup>1</sup> and resembles a face engraved on the cover of a black lacquer bowl with Skeletons 13 and 14. (Plate 24). Perforated coyote teeth were found in a grave at Ticoman and a necklace, apparently of jaguar teeth, was found by Habel in Salvador. Beautifully carved animal teeth were uncovered by the Peabody Museum expedition at Coelé in Panama. A jade bead imitating a human tooth occurred in the Holmul III period (Plate 33, *f*). Jade beads made into the form of jaguar incisors have been frequently recovered from the Oaxaca-Guerrero region of Mexico; and teeth imitated in pottery have been found at such widely separated points as the Uloa Valley and the Middle Zacatenco débris of El Arbolillo in the Valley of Mexico.<sup>2</sup> This custom of carving teeth, or imitating them in other substances, is probably more of a generalized cult practice than a closely knit social phenomenon involving contact and thereby coincidence of period.

G. C. V.

#### WALL CARVINGS

A number of scrawled pictures were found incised on the plaster of Room 1, Building A, Group II. Bad drawings, made informally by amateurs, afford the shakiest sort of foundation for comparative study.<sup>3</sup> Yet there is a sort of generic resemblance between these scribbles and those found at Tikal in Temple II, and the Palace of Two Storeys opposite Temple V. One of these figures (Fig. 31, *b*) was a crude representation of a temple that reminds one a little of the examples shown by Maler in Figs. 8 and 13. Two people carrying a third in a palanquin (Fig. 31, *e*) recalls a similar conveyance shown by Maler in Fig. 12, No. 3. The remaining figures are not paralleled in the scanty corpus of *graffiti* from the Maya area. They comprised a man blowing a conch shell trumpet (Fig. 31, *f*), a representation of the long-nosed god (Fig. 31, *d*), a double row of geometric designs set within three concentric circles (Fig. 31, *c*), and lastly, a representation of a shield, atl-atl, and spears (Fig. 31, *a*). The last design occurs relatively commonly in Aztec codices and inscriptions.<sup>4</sup> At Nakum, Tozzer found *graffiti* suggestive of Mexico, resembling figures in the "Tonalamatl Aubin." This resemblance may be fortuitous, but it is quite striking in view of its rarity in Maya design.

G. C. V.

#### BURIALS

The usual form of burial at Holmul is extended, without any particular attempt at orientation. The bodies appear to have been wrapped in their clothes and mantles at interment. Unfortunately, all the skeletons were found in such a fragmentary state that no measurements upon them were possible. Skeleton 15 in Room 4 and Skeleton 16 in Room 7 of Building B, Group II, were found scattered, but not as though disturbed by another burial. Possibly animals had played a part in the displacement of the bones. Skeleton 20, in the vault below Room 8, was a "bundle" burial without much question; but Skeletons 17-19 in Room 8 were scattered, and the bones of Skeleton 21 in Room 9 were in two groups, separated by seven inches of loose soil.

<sup>1</sup> Batres, 1906, Figs. 26 and 27.

<sup>2</sup> Jaguar teeth, collections of the American Museum of Natural History.

<sup>3</sup> Thompson, E. H., 1897, *b*, Figs. 8-9; 1898, Figs. 32,

33, 35, 36. Maler, 1908, Figs. 8-17. Tozzer, 1913, Figs. 48-49. Gann, 1918, Fig. 39. Morris, 1931, p. 475.

<sup>4</sup> Caso, 1927, pp. 49-50, Figs. 64, 67. Seler, 1902, Vol. II, pp. 423, 1004, 1005, 1007.



Ricketson's careful analysis of burials in the Maya area renders commentary on the nature of the burials unnecessary.<sup>1</sup> It is striking, however, that a "bundle" burial like Skeleton 20 of Holmul I date did not occur in Gann's digging at Mound 6 near Santa Rita, which produced similar ceramic material.

G. C. V.

<sup>1</sup> Ricketson, 1925.

## CONCLUSIONS

Aesthetically, the importance of the finds at Holmul is beyond question. Historically, the significance of Holmul depends on the value of pottery as an index to time and tribe in the case of an advanced people. Egyptologists and classical archaeologists have been able to harness dirt and documents by means of the ceramic approach, but in the Middle American field, stelae, temples, and traditions have been emphasized to the virtual exclusion of the humbler technological approach to history.

Since dated monuments are lacking at Holmul, analysis of the site depends upon technical factors such as pottery and architectural detail. Comparative studies are therefore limited to the workaday details of material culture, so that the rich ceremonial aspect of Maya archaeology rarely obtrudes. Thus, the five periods at Holmul are defined in the following terms.

### HOLMUL I

The original burial structure, Building B, Group II, is the first architecture detectable at Holmul. This contains the vaults wherein were buried Skeletons 19-21. The pottery of this period exhibits paucity of painted decoration, and comprises bowls with tetrapod supports and annular bases, spouted vessels, and pot-stands. This pottery as a group does not resemble that found under Temple E-VII-sub, at Uaxactun, but on the basis of forms connects with vessels collected by Spinden which were made of the same ware as sherds found by Lardé and Spinden under volcanic ash in Salvador. Notable is the absence of figurines from this period. The fact that the Holmul I pottery, the ceramics from beneath the floor at Temple E-VII-sub at Uaxactun, and the pottery of the Huasteca are all different, argues a complex origin for the Maya groups (Fig. 26, *a*). The Holmul I pottery shows more southern affiliations than it does northern or western.

### HOLMUL II

This period is chiefly indicated by architectural activity. Rooms 1-3 of Building B, Group II, are characterized by narrow width and low ceilings. Building A of the same group exhibits somewhat the same inner proportions, but has very thick walls and roof comb. The domiciliary building, E of Group II, is perhaps of this period (Fig. 25, *a-j*).

Possibly later in Period II are the long, narrow rooms with attenuated vaults found in Buildings A and B of Group I, which probably also have roof combs. Ruin X, which shows the same general features, might be included with them (Fig. 25: *k-o*). The interior of the substructure of Building A, Group II, has not been explored, nor have cuts been made into the massive Mound D of Group I which is probably of Period I or II.

The use of the mask, heavy plaster-work, and heavy single-member cornice elements connects Buildings A and B, Group II, with Temple E-VII-sub at Uaxactun. Plaster-work and single-member cornices are also characteristic of Tikal, and the roof proportions of Building B are similar to those of Structure 27 there. The high vaults of Buildings A and B in Group I are like those of Temples I-V at Tikal, but the ground plans show no similarity. On general resemblance, but not on identity of ground plan or elevation, Period II connects with early Peten-Maya structures.

Ceramically, Holmul II is insignificant. Vault 7 of Building B, Group II, yielded a black lacquer bowl with basal bevel and four cylindrical legs, a cover with an animal

knob, a pot-stand, and perhaps an orange lacquer composite silhouette bowl. Although the vault was constructed at the beginning of Period III, its pottery occupies a transitional position between Holmul I and Holmul III ceramics and might be taken as typical of the pottery of Holmul II. Evidence of ceramic connection with other regions is rare at this time.

### HOLMUL III

This period is more potent ceramically than it is architecturally. Room 4 of Building B, Group II, was built after the enlargement of the original substructure and the construction of Room 7. It has a much wider vault space than the rooms we have previously considered. Perhaps of this same period are the wide-roomed structures with single ground plans like Buildings F and D in the same group (Figs. 12, 18, 20). The exterior ornament of Room 4, although perhaps derived from the masks of Temple E-VII-sub at Uaxactun, is possibly equivalent to that of Structure D, Nakum.

Ceramics flourish in Period III, and the material is drawn from three of the four burial episodes found in Rooms 1-4 of Building B. The earliest Period III pottery comes from the second interment phase and brings in a new form of bowl with composite silhouette and a basal bevel. The bowls have covers with exquisitely modelled knobs. A lustrous black lacquer slip covers the vessels, and subsidiary decoration is made by means of incision. Sometimes polychrome designs adorn these bowls, but in such cases there is no modelling of the knobs on the covers. Ollas with pitcher mouths are made of unslipped grey porous ware. One of these is an effigy vessel in shoe form. The third burial period reveals polychrome decoration extended to bowls with covers. Plain and black lacquer composite silhouette bowls also obtain, and one example was found of a red lacquer bowl with a flat bottom, bevel base, and four cylindrical feet.

The fourth and last burial episode of Holmul III reveals a breaking down of the fine modelling and painting seen in lacquer ware composite silhouette bowls of the previous period. Simple silhouette bowls on low ring bases and red and yellow lacquer come in, while a number of slipped grey ware vessels also appear. Some of these have pitcher mouths and two have effigy covers, each representing a kneeling deer. The pot-stand is still in use, but two low cylindrical vases on squat legs usher in another form. A new style also is represented by narrow cylindrical vases with covers surmounted by human heads, of which one is decorated in "lost color."

Through Holmul III one sees the rise and decline of a ceramic style, a condition which might possibly argue for long continuance. The red and black lacquer composite silhouette bowls with bevel bases occur at Uaxactun in conjunction with the buildings of the full Maya period. Many such sherds appear in the masonry of Temple E-VII. A few similar shapes are found in the region of Chamá, and cylindrical vases with covers also occur in the Guatemalan Highlands (Fig. 26, *b*).

Many specimens of ornament are present in shell, bone, jade, and other materials. The jade must have come from the Highland region and the shell from the seacoast, probably British Honduras. Although we find in bowl shapes traces of contact in the Highlands, British Honduras yields no evidence of the influence of Holmul III ceramics.

A carved tooth is paralleled in far-off Teotihuacan, to which the low cylindrical vases on legs suggest an additional, though weak, link. Further excavation alone can decide whether the two sites were contemporaneous and entered into trade relationship with each other. It is notable that well-carved jades depicting human figures are absent from Holmul, although they occur fairly frequently in the Highlands of Mexico and Guatemala.



## HOLMUL IV

Holmul IV is architecturally insignificant, although the mounding over of Buildings B, D, E, and F in Group II reveals considerable activity. Buildings E and F contain burials; and a vault, Room 10, was constructed for Skeleton 22 in the mound over Building B. The pottery in Room 10 is a degeneration and blurring of the beautiful forms made at the height of Holmul III and continues the decadence witnessed in the last episode of that epoch. Holmul IV, architecturally and ceramically, drops the curtain on Holmul III, even as Holmul II caused it to rise. It is an episode closing off an era of great human activity, rather than a prolonged epoch in the existence of the community of Holmul.

## HOLMUL V

A great renaissance comes in Holmul V. Architecturally it seems to embrace the development of the "Monjas" style of ground plan, due to the construction of buildings with broad rooms intended primarily for residence and arranged according to a complex plan. These include in Group I, Buildings C and E, the burial structure, F, and Room 6 (the vault with four springs) of Building B; in Group II, Building C (the one edifice except the early Building A that was not mounded over in that plaza); and in Group III, Buildings A and B (Figs. 4-7, 17, and 22). There is a possibility that these buildings are not coeval but distributed throughout the whole occupation of Holmul; the evidence pro and con, however, has been discussed in the section on architecture. The internal proportions of these rooms are repeated in domiciliary structures of the "Monjas" type from the Peten region to northern Yucatan. The standard proportions for secure construction were decided, seemingly, in this epoch.

The fact that some of the Holmul V burials were found immured in Building X, a Holmul II structure, shows that certain old buildings were kept in use continuously. The dating of the *graffiti* in Building A, Group II, as of Holmul V or Holmul III raises an interesting problem in view of the Mexican character of the design in Room 1, revealing atl-atl, dart, and feathers, and of some of the *graffiti* at Nakum.

Holmul V ceramics reveal a much greater influx of new ideas than the pottery of the preceding periods. Although the wares are of the same lacquer composition and certain shapes like the simple silhouette bowl are retained, new shapes like the tall cylindrical vase and the bowl with a hollow cylindrical tripod appear (Fig. 26, *d*). The white slip is introduced and also the painting of life forms in two shades of red. Glyphs are used as a decorative element for the first time, and there is an occasional use of black decorative paint on a white field.

Vessels of an identical ceramic family have been taken from a chultun at Yalloch, and related wares from chultunes at Nakum, and from graves in British Honduras. For the use of glyphs and life forms, one finds an apparent source in the pottery of Copan, although the forms are very different. Transmittal of these decorative elements may have been by way of Pusilhá and Uaxactun, where life forms in another style appear under late circumstances. It may even be that the inspiration for the beautiful life forms of the Chamá region was drawn from Holmul. It is certain that in the adjoining region of British Honduras we find evidence of a strong ceramic influence emanating from Holmul V, such as the presence of Holmul V tripod bowls among the Copan-inspired pottery of the Pusilhá caves, and the degenerate life forms on the painted vases of northern British Honduras (Fig. 26, *c*).

Such a development as the rise of figure painting might be correlated with the "Great Period" of the "Old Empire," but the dates of the Copan stelæ with which vessels thus



decorated were associated are later than the dates given for its inception. Consequently, allowing for time to refine the crude technique of Copan drawing, we approach the close of the "Great Period" as the time of the Holmul V emanation. A less satisfactory correlation of trade pottery with the life forms of Chamá also indicates a late date.

Continued excavation and research will render obsolete and mistaken much of the analytical data contained in this discussion of the finds at Holmul. Yet, in view of the scant attention given to field archaeology in the existing literature on the Maya, it seems advisable to record the lines of potential research suggested by our efforts to establish the chronological and ethnological significance of Holmul ceramics.

The transcendent importance of Dr. Merwin's discovery becomes clear when we compare his completely documented body of material with the mass of the *corpus* of Maya ceramics. It is also evident that the traditional approach to Maya archaeology by means of myth, stela, and monument avails us little in casting up the historical account of Holmul. The excavator will have a very considerable part to play before we comprehend the Maya civilizations in terms of the entire Middle American scene.

In this study of Holmul we find the material culture of the Maya springing from several local sources, and thus the idea of a homogeneous cultural background like the "Archaic" culture which is supposed to have extended from Zacatecas to Peru is a gross misapprehension of the history of man anterior to the rise of the great New World civilizations. There were, undoubtedly, a long and complex series of cultural radiations from many different centers in northern South America and Middle America before the specialized civilizations ever took form.

We find that, although linked by their religion, calendar system, and in a less degree by their architecture, the Maya are split off ceramically into several divisions, like the Copan, Peten, Yucatan, and Highland ceramic families which occasionally show signs of mutual influence. Were there no stelae, we should interpret this divergence as indicative of several independent political entities, a suggestion that is greatly strengthened by the number of Maya dialects existing today.

Once the idea of the presence of several local Maya groups is broached, one is confronted with the possibility that certain areas judged to be populated at different times on the basis of a stylistic evaluation of their architecture were contemporaneous. One is also struck by the character of the culture absorption shown by the Maya of Holmul. Their original pottery was drawn most probably from some southeastern source, and their stone and shell they also received from other localities, but the pomp of the stela cult, although flourishing only a few miles away, does not seem to have strongly penetrated their culture. During the beginning and close of their occupation they detectably influence other regions, but in their heyday, Holmul III, little trace of their culture may be found abroad except at Uaxactun and in the case of scattered vessels elsewhere.

In this study of Holmul one realizes most strongly the limited opportunities for cross dating in the Maya archaeology, for although Holmul is surrounded by dated cities like Tikal, Uaxactun, Nakum, and Seibal, one is driven to distant Copan for a date indicative of the close of Holmul's occupation.

Research in the Maya area has been marvellously conducted in the face of almost insuperable conditions of terrain and transport, and much knowledge has been amassed. Yet from the technical point of view the archaeology is woefully deficient. It is hoped that, in the future, collections will be gathered that will render comparative studies possible and eventually create as full a history for the Maya as that achieved for the early people of the Southwestern United States.

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Gordon, 1925. Maler, 1903.
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Blom and La Farge, 1926-27.
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Gordon, 1928. Seler, 1904, a. Spinden, 1913.
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# MUSEUM CATALOGUE NUMBERS OF SPECIMENS ILLUSTRATED

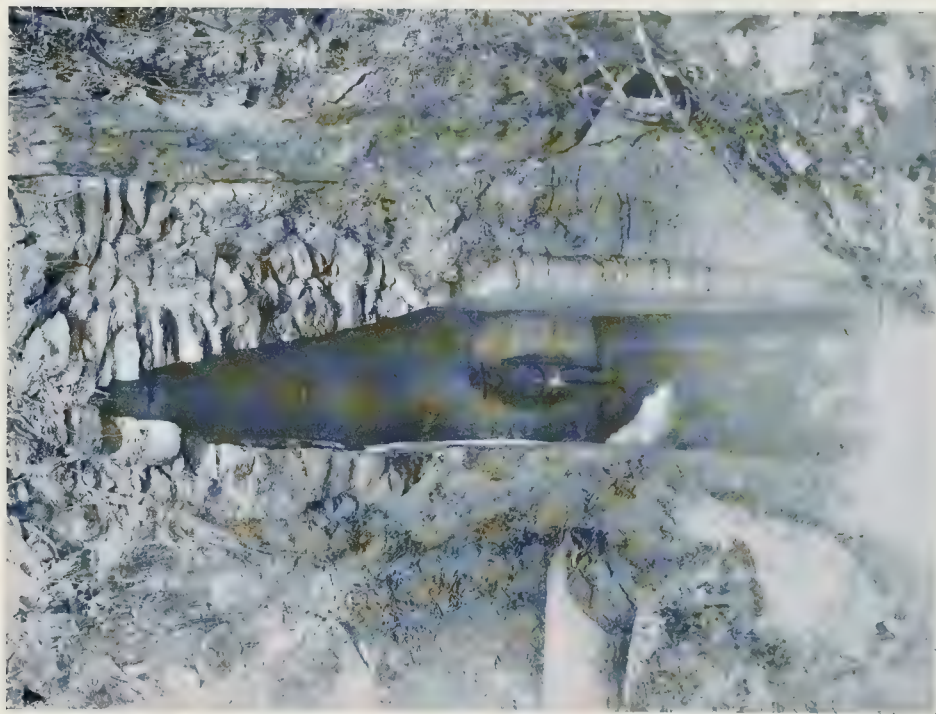
- PLATE 18. *a*, c-5656; *b*, c-5644; *c*, c-5658; *d*, c-5659; *e*, c-5657; *f*, c-5650.
- PLATE 19. *a*, c-5660; *b*, c-5649; *c*, c-5646; *d*, American Museum of Natural History 30.0-6525; *e*, c-5645; *f*, c-5651; *g*, c-5630.
- PLATE 20. *a*, c-5631; *c*, c-5575; *d*, c-5574; *e*, c-5576; *f*, c-5647.
- PLATE 21. c-5572.
- PLATE 22. c-5577.
- PLATE 23. cover, c-5576; bowl, c-5441.
- PLATE 24. c-5579.
- PLATE 25. cover, c-5477; bowl, c-5478.
- PLATE 26. *a*, c-5592; *b*, c-5591; *c*, American Museum of Natural History 30.0-6527; *d*, c-5430; *e*, c-5433.
- PLATE 27. *a*, c-5438; *b*, c-5437; *c*, c-5437; *d*, c-5439; *e*, c-5435; *f*, c-5443; *g*, c-5523; *h*, c-5520; *i*, c-5525.
- PLATE 28. *a*, c-5560; *b*, c-5628; *c*, c-5559; *g*, c-5661; *h*, American Museum of Natural History, 30.0-6528.
- PLATE 29. *a*, c-5666; *b*, c-5524.
- PLATE 30. *a*, c-5668; *b*, c-5710.
- PLATE 31. *a*, c-5669; *b*, c-5671; *c*, c-5690; *d*, c-5670.
- PLATE 32. *a*, c-5566, c-5567; *b*, c-5558; *c*, c-5561, c-5562; *d*, c-5562; *e*, c-5563; *f*, c-5558; *g*, c-5599; *h*, c-5605; *i*, c-5600; *j*, c-5678; *k*, c-5724; *l*, c-5674; *m*, c-5724; *n*, c-5599; *o*, c-5701; *p*, c-5701; *q*, c-5701; *r*, c-5551; *s*, c-5511; *t*, c-5460; *u*, c-5511; *v*, c-5460; *w*, c-5534; *x*, c-5549; *y*, c-5460; *z*, c-5460; *aa*, c-5571; *bb*, c-5608; *cc*, c-5608; *dd*, c-5723; *ee*, c-5689; *ff*, c-5723; *gg*, c-5456.
- PLATE 33. *a*, c-5702; *b*, c-5720; *c*, c-5602; *d*, c-5596; *e*, c-5470; *f*, c-5515; *g*, c-5468; *h*, c-5720; *i*, c-5468; *j*, c-5484; *k*, c-5653; *l*, c-5720; *m*, c-5598; *n*, c-5720; *o*, c-5694; *p*, c-5468; *q*, c-5719; *r*, c-5720; *s*, c-5470; *t*, c-5677; *u*, c-5550; *v*, c-5468; *w*, c-5708; *x*, c-5490; *aa*, c-5456; *bb*, c-5457; *cc*, c-5454; *dd*, c-5555.
- PLATE 34. *a*, c-5500; *b*, c-5499; *c*, c-5722; *d*, c-5451; *e*, c-5582, c-5509; *f*, c-5610; *g*, c-5588; *h*, c-5700; *i*, c-5505; *j*, c-5530; *k*, c-5528.
- PLATE 35. *a*, c-5612; *b*, c-5612; *c*, c-5570; *d*, c-5569; *e*, c-5532; *f*, c-5612; *g*, c-5532; *h*, c-5472; *i*, c-5483; *j*, c-5576; *k*, c-5612; *l*, c-5569; *m*, c-5464; *n*, c-5612; *o*, c-5569; *p*, c-5502; *q*, c-5698; *r*, c-5652; *s*, c-5531; *t*, c-5510; *u*, c-5510; *v*, c-5532; *w*, c-5510; *x*, c-5507; *y*, c-6040; *z*, c-5609; *aa*, c-5583; *bb*, c-5453; *cc*, c-5475; *dd*, c-5554; *ee*, c-5553; *ff*, c-5531, c-5603; *gg*, c-6041; *hh*, c-5583; *ii*, c-5529.
- PLATE 36. *a*, c-5501; *b*, c-5618; *c*, c-5546; *d*, c-5619; *e*, c-5487; *f*, c-5620; *g*, c-5618; *h*, c-5540; *i*, c-5580; *j*, c-5538; *k*, c-5538; *l*, c-5542; *m*, c-5486; *n*, c-5543; *o*, c-5488; *p*, c-5488.





PLATES





ENTRANCE TO ROOM 1, BUILDING A, GROUP I





*a.* WEST SIDE, BUILDING F, GROUP I



*b.* SKELETON 1, RUIN F, GROUP I



DOORWAY OF ROOM 1, LOOKING OUT, BUILDING A, GROUP II





*a.* MASK, EAST SIDE SUBSTRUCTURE, BUILDING A, GROUP II



*b.* DOUBLE ROW OF MASKS, SOUTH SIDE SUBSTRUCTURE, BUILDING A, GROUP II





*a.* SECTION OF MASK, EAST SIDE SUBSTRUCTURE, SHOWING EYE AND FANG, BUILDING A, GROUP II



*b.* SECTION OF MASK, EAST SIDE SUBSTRUCTURE, SHOWING EYE, BUILDING A, GROUP II





a. SOUTH FAÇADE AND DOOR BLOCKS, BUILDING B, GROUP II



b. SOUTH FAÇADE WITH BLOCKS REMOVED, BUILDING B, GROUP II





a. SOUTH FAÇADE SHOWING SUBSTRUCTURE, VAULT TO ROOM 8, BUILDING B, GROUP II



b. DETAIL OF FILL IN ROOM I, BUILDING B, GROUP II



a. MASONRY AGAINST EAST SIDE, BUILDING B, GROUP II



b. CORNER EAST SIDE, NEARLY CLEARED, BUILDING B, GROUP II





*a.* NORTHEAST CORNER, ROOM 4, BUILDING B, GROUP II



*b.* POTS WITH SKELETON 1, ROOMS 1 AND 2, BUILDING B, GROUP II

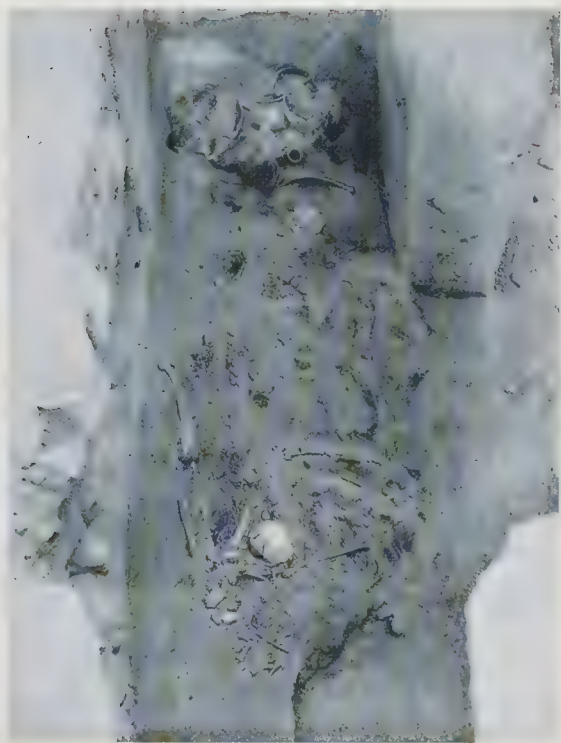




*a.* EAST END, ROOM 2, SHOWING SKELETONS 9 AND 10, BUILDING B, GROUP II



*b.* POTS WITH SKELETON 5, EAST END, ROOM 2, BUILDING B, GROUP II

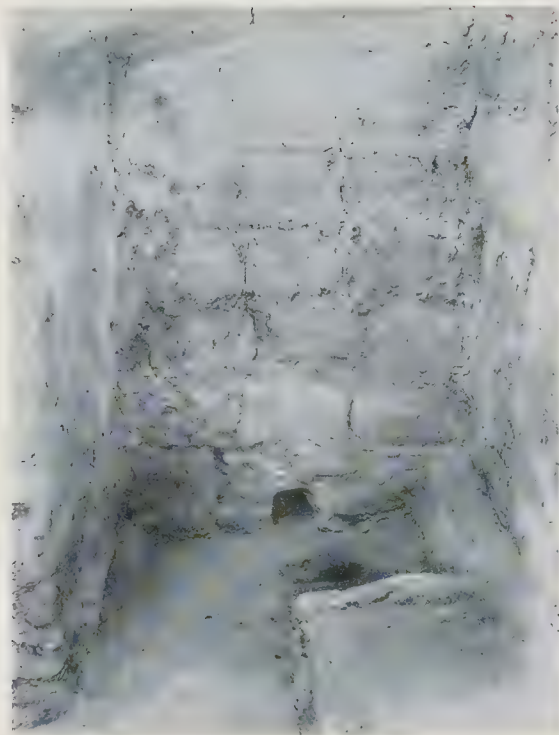


a. SKELETONS 13 AND 14, WEST END, ROOM 2, BUILDING B, GROUP II

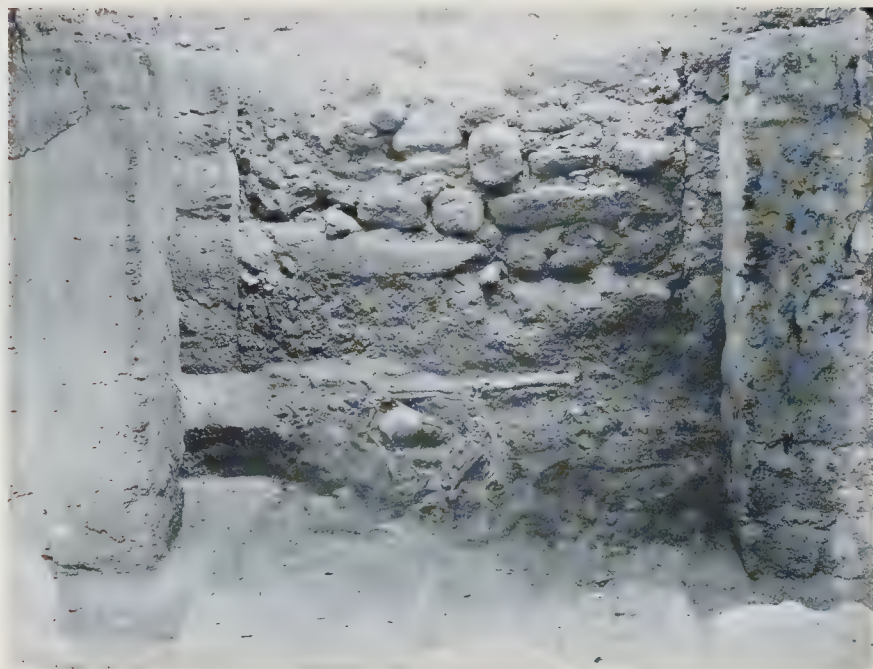


b. WEST END, ROOM 2, SHOWING POTS A, B, AND C, BUILDING B, GROUP II



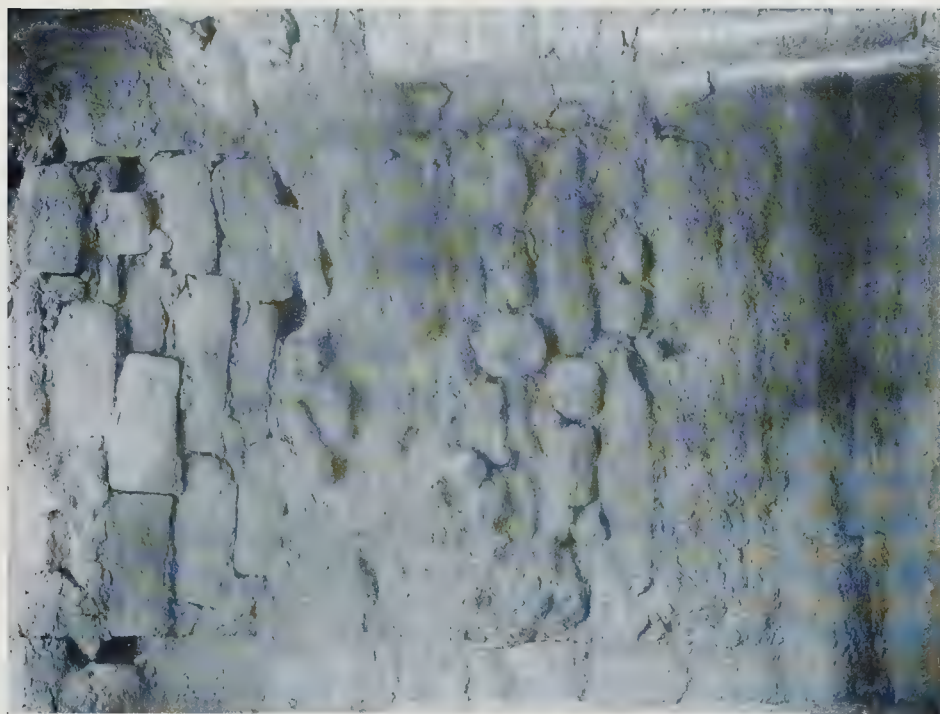


*a.* WEST END CLEARED, ROOM 2, BUILDING B, GROUP II



*b.* SKELETONS 5, 13, AND 14, ROOM 2, BUILDING B, GROUP II





a. DOOR BLOCK TO ROOM 3, BUILDING B, GROUP II



b. ROOM 4, SHOWING VAULT INSERTED WITHIN ORIGINAL CHAMBER, BUILDING B, GROUP II



*a.* ROOM 10, BUILDING B, GROUP II



*b.* ROOM 8, BUILDING B, GROUP II





*a.* DOOR BLOCK, BUILDING E, GROUP II



*b.* SKELETON 1, ROOM 2, BUILDING E, GROUP II





a. DOOR BLOCK, BUILDING F, GROUP II



b. SKELETON 1, BUILDING F, GROUP II



SKELETONS 1 AND 2, RUIN X





POTTERY OF HOLMUL I  
 The bowl *b* is 12½ inches in diameter





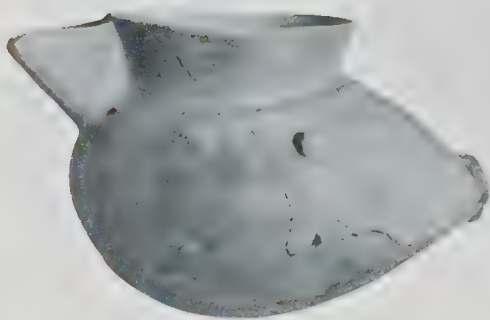
POTTERY OF HOLMUL I AND II  
 Holmul 1, *a f*; Holmul II, *g*. Pot *e* is 7½ inches high



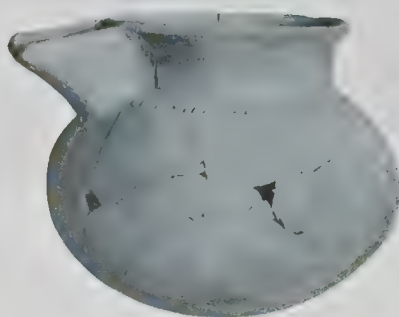
*a*



*b*



*c*



*d*



*e*



*f*

POTTERY OF HOLMUL I, II, AND III

Holmul I, *f*; Holmul II, *a* and *b*; Holmul III, *c-e*. Pot *f* is 14 $\frac{3}{4}$  inches in diameter



*a*



*b*



*c*

21. BLACK LACQUER BOWL WITH EFFIGY COVER, HOLMUL III  
The bowl is 13 inches in diameter





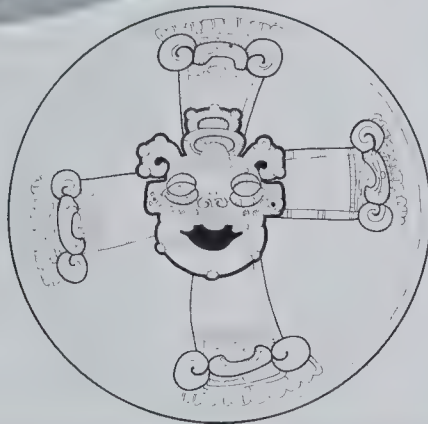
BLACK LACQUER BOWL WITH EFFIGY COVER, HOLMUL III  
The bowl is 11 inches in diameter



*a*



*b*



*c*

BLACK LACQUER BOWL WITH EFFIGY COVER, HOLMUL III  
The bowl is 14 inches in diameter

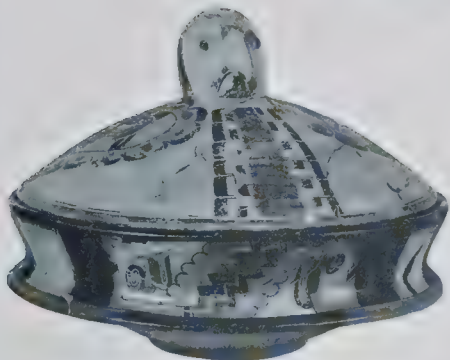


BLACK LACQUER BOWL AND COVER WITH ORNAMENTAL KNOB, HOLMUL III  
The bowl is  $15\frac{1}{2}$  inches in diameter

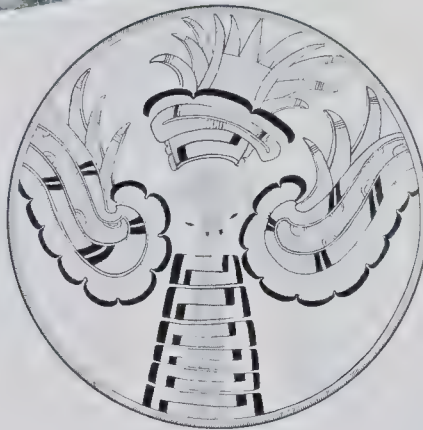




*a*



*b*



*c*

POLYCHROME LACQUER BOWL WITH EFFIGY COVER, HOLMUL III  
The bowl is 12 inches in diameter



POTTERY OF HOLMUL III

The parrot-head cover, *a*, was found with the bowl *b*. Pot *b* is 13½ inches in diameter



POTTERY OF HOLMUL III

The effigy cover, *b* and *c*, was found with the bowl *d*, and the cover *a* with a similar bowl. Pot *h* is  $11\frac{1}{4}$  inches in diameter





POTTERY OF HOLMUL III AND IV

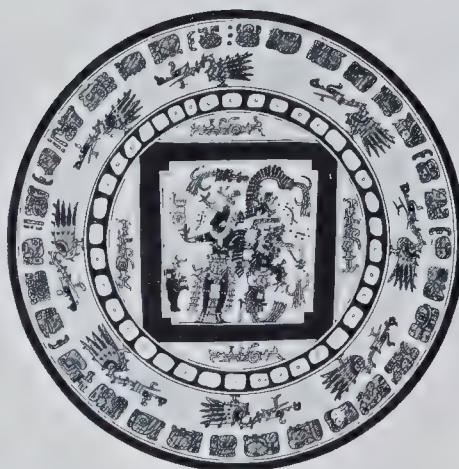
Holmul III, *a* (*d*, design on *a*), *c* (*e* and *f*, designs on *c* and its cover); Holmul IV, *b*, *g*, and *h*. Pot *g* is 11 $\frac{1}{4}$  inches in diameter



*a*



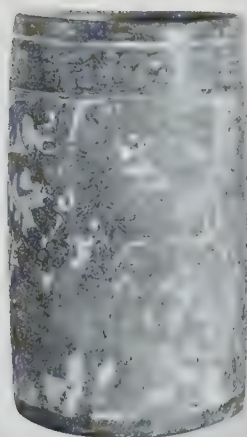
*b*



*c*

POTTERY OF HOLMUL III AND V

Holmul III, *b*, drawing of interior design on bee-man bowl; Holmul V, *a* (*c*, drawing of interior design on *a*). Pot *a* is 14 $\frac{1}{4}$  inches in diameter



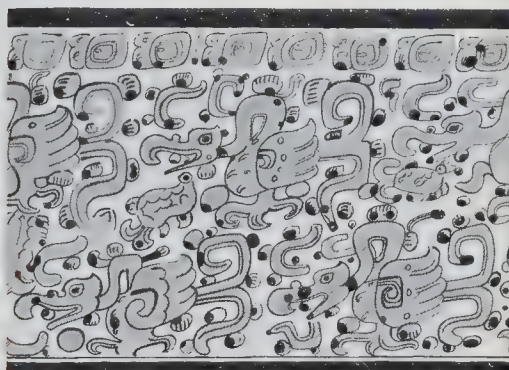
*a*



*b*



*c*



*d*

TWO POLYCHROME VASES, HOLMUL V

The drawing *c* represents design on *a*, *d* represents that on *b*. Pot *b* is 10 inches high





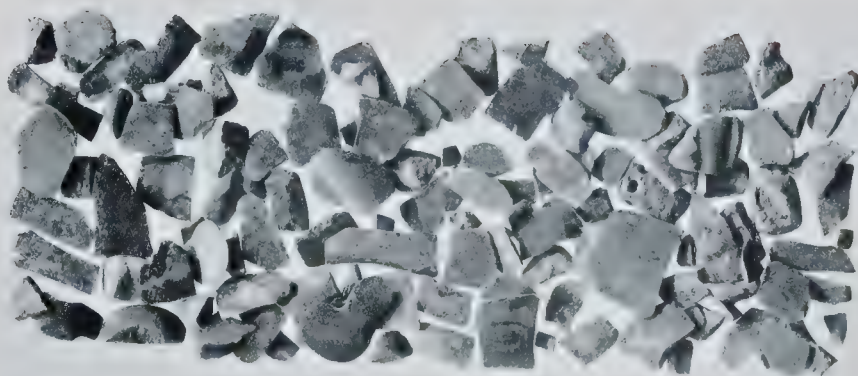
POTTERY OF HOLMUL V

The interior of *d* is shown at *e*. Pot *d* is 16 inches in diameter

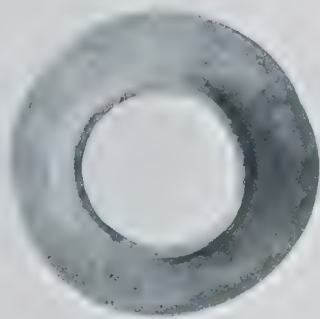
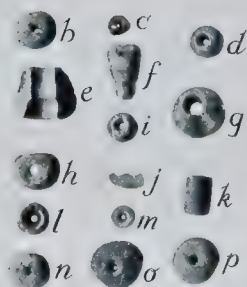


## MISCELLANEOUS OBJECTS

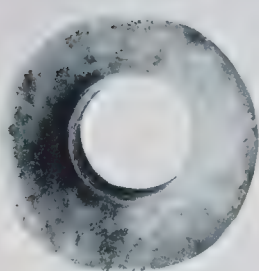
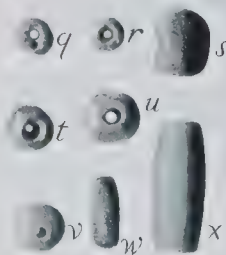
Specimens *a-f*, inlaid teeth; *g-g*, obsidian blades; *r-aa*, fragments of iron pyrites; *bb*, *cc*, and *ee*, fragments of figurines; *dd*, *ff*, and *gg*, pottery tools, possibly counters. Specimen *p* is  $3\frac{1}{2}$  inches long



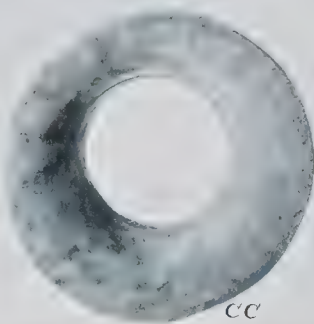
*a*



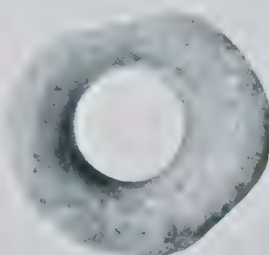
*aa*



*bb*



*cc*



*dd*

JADE AND OTHER STONE BEADS, EAR PLUGS, AND FRAGMENTS  
Specimens *a-x*, beads; *aa-dd*, ear plugs. Specimen *aa* is  $3\frac{1}{2}$  inches in diameter





## SHELL AND BONE OBJECTS

Specimens *a*, *b*, *g* (Fig. 28, *a*), *j* (Fig. 27, *b*), and *k*, shells bored for suspension; *c*, bone awl; *d* (Fig. 30, *b*), awl made from barb of sting ray; *e* and *i*, disc beads of shell; *f* (Fig. 27, *a* and *c*), conch shell; *h* (Fig. 28, *b*), carved shell ring. Specimen *a* is  $6\frac{3}{4}$  inches in greatest diameter



SHELL, BONE, AND STONE OBJECTS

The group, *a*, shell features for mask; *g*, *z*, *bb*, and *cc*, shell rings; *g*, *aa*, and *hh*, shell buttons; *z*, halved and perforated shells. The group, *a*, measures approximately  $7\frac{3}{4}$  inches at its widest point



SHELL AND BONE OBJECTS

The group, *a*, deer tarsi; *b*, perforated jaws; *c*, small animal skulls; *d* and *f* (Fig. 29), engraved shell discs; *g*, sharks' teeth; *e*, barb of sting ray; *h*, shell pendant; *i* (Fig. 30, *a*)–*k*, hollow bone objects; *l* and *p* (Fig. 30, *c*), carved teeth; *m*, *n*, and *o*, carved antler. Specimen *i* is 3½ inches long



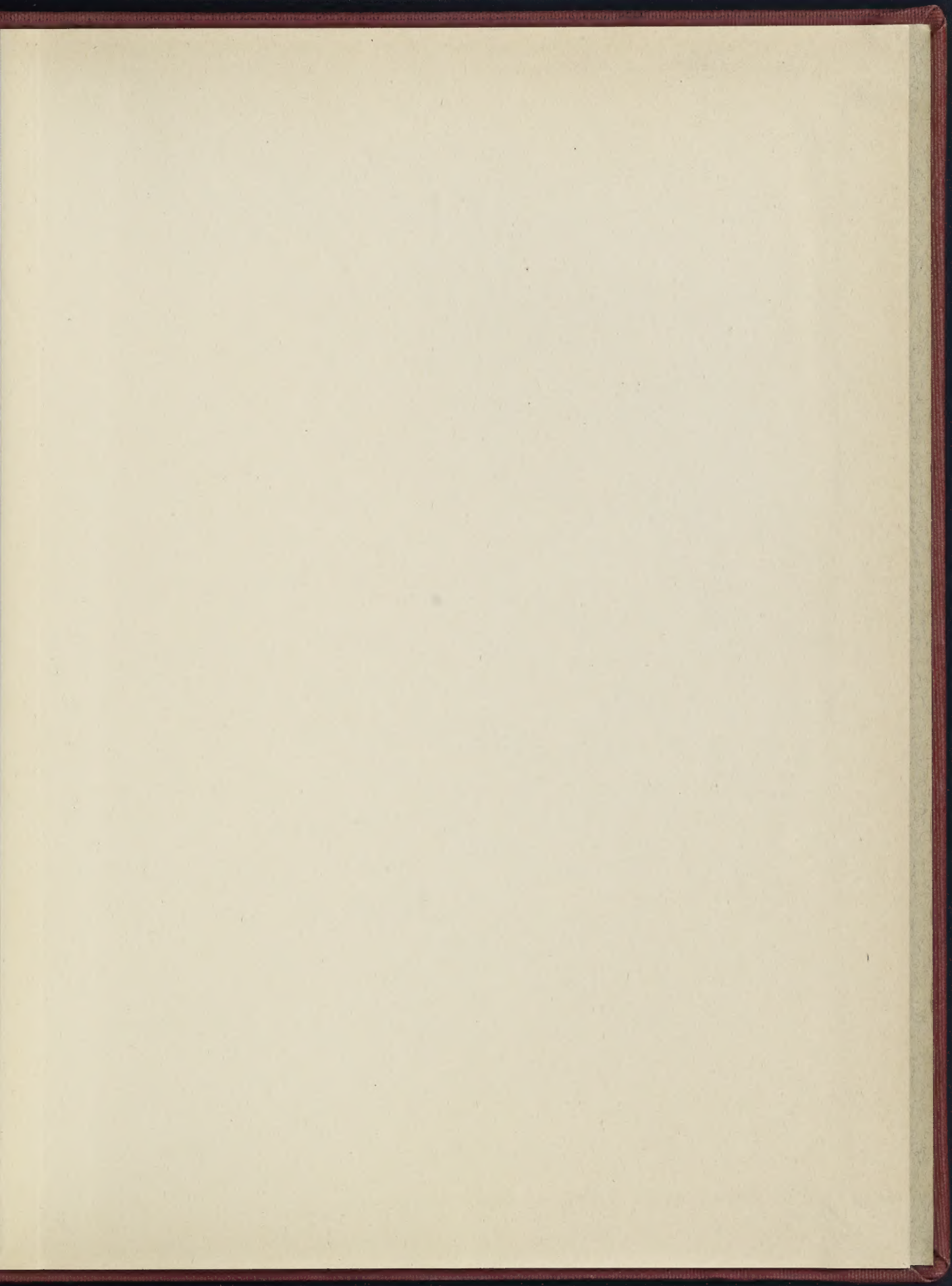














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